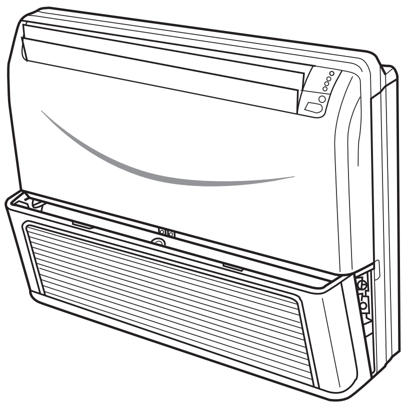
# Service Manual

## Commercial Air Conditioning

Convertible Type R22 Heat Pump Series



HCFU-14H03 (AC142ACAAA+AU142AFAAA)
HCFU-18HC03 (AC182ACABA+AU182AFABA)
HCFU-24H03 (AC242ACAAA+AU242AHAAA)
HCFU-28HC03 (AC282ACABA+AU282AHABA)
HCFU-36H03 (AC36NACAAA+AU36NAIAAA)
HCFU-42HC03 (AC42NACABA+AU42NAIAEA)

## ● Features

- Auto-restart function
- Group control(with a group controller)
- Auto-changeover
- Compact design of indoor unit
- Weekly timing(with a weekly timer)

Haier Group

MANUAL CODE: SYJS-006 EDITION:2002.12.31.

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# 1 DESCRIPTION OF PRODUCTS & FEATURES

## 1.1 Products coding direction

**Old code**

**H CFU – 42 C M 03 / R1**

- R1: Refers to HFC refrigerant
- 03: Power: 03(230V/50Hz).04(240V/50Hz).12(115V/60Hz).13(230v/60Hz)
- M: Low ambient cooling
- C: "H" refer to cooling and heating, "C" refer to cooling only
- 42: Nominal cooling capacity (BTU/h), 42=42000BTU/h
- CFU: Indoor and outdoor unit code: "CF" Convertible type; "U" Outdoor unit
- H: "H" means "Haier"

**New code**

**A C 42 N A C N A C**

- C: Climate type: T1 (see table 1), and -15 degree cooling
- A: Design number (A stands for fix speed type)
- N: Product type: A stands for heat pump type, refrigerant is R22
  B stands for heat pump type, refrigerant is R407
  M stands for cool only type, refrigerant is R22
  N stands for cool only type, refrigerant is R407
- C: Appearance character
- A: Product series: one by one type
- N: Applicable voltage: 2 stands for 220-240V/50Hz,4 stands for 220v/60Hz
  N stand for 380V/50Hz
- 42: Cooling / Heating capacity,42=42000BTU/h
- C: Product type : "B" stands for cassette type, "C" stands for convertible type, "D" stands for duct, "S" stands for split type, "Q" stands for chiller system, "E" stands for ceiling concealed type, "U" stands for outdoor unit
- A: Air conditioner

## 1.2 Brief Introduction to T1、T2、T3 working condition

**Table 1**

| Type of Air Conditioner | Climate type | | |
|---|---|---|---|
| | T1 | T2 | T3 |
| Cool only | 18℃～43℃ | 10℃～35℃ | 21℃～52℃ |
| Heat pump | -7℃～43℃ | -7℃～35℃ | -7℃～52℃ |
| Electricity heating | ～43℃ | ～35℃ | ～52℃ |

## 1.3 Operating Range of air conditioners

**Normal condition**

| Operation | Operation Range Outside / Inside |
|---|---|
| Cooling | $15^0$C – $43^o$C |
| Drying | $15^0$C – $43^o$C |
| Heating | -$7^o$C – $18^o$C |

## 1.4 Products characteristic

**(1).HFC refrigerant technology**

To protect the environment, we have adopted the HFC refrigerant. The HFC R407C is of zero ODP for the purpose of environmental protection.

**(2).Ceiling/console convertible,flexible installation,convenient maintenance,saving the users' expenditures**

**(3).Adopting single-phase or three-phase power supply,applicable for household and commercial usage**

**4).Dual air outlet design,floor air blowing,accelerating the indoor air circulation, quick temperature adjustment**

**(5).Long-distance air blowing,large power,large cooling/heating ratio**

**(6).Intelligent remote control,convenient and flexible control**

**(7).Super-slim indoor unit design,luxury and nice-looking,saving space,harmonious and unitive with the indoor environment**

**(8).Adopting screw-fastening for the air inlet grill,firmly fixed;adopting slipway insert-lock fastening method for the filter screen,convenient cleaning or replacing the filter screen without opening the air inlet grill.**

**(9).Group control,units up to 128 sets can be controlled**

# 2 SPECIFICATIONS

| Item \ Model | | | | HCFU-14H03 | |
|---|---|---|---|---|---|
| Function | | | | Cooling | Heating |
| Capacity | | | BTU/h | 14000 | / |
| Total power input | | | W | 2000 | / |
| EER or COP | | | BTU/W | 7.00 | / |
| Dehumidifying capacity | | | 10 - ³×m³/h | 2.1 | |
| Power source | | | PH-V-Hz | 1PH, 220V-230V, 50HZ | |
| Running current/Starting current | | | A | 9/13.8 | / |
| Power cable | | | | / | |
| Indoor unit | Unit model | | | AC142ACAAA | |
| | Fan | Type × Number | | CENTRIFUGAL×2 | |
| | | Speed | r/min | 1070/-/- | |
| | | Air-flow(H-M-L) | m³/h | 900 | |
| | Heat exchanger | Type / Diameter | | TUPU/9.52 | |
| | | Flow | | 2/2 | |
| | | Total area | m² | 0.199 | |
| | | Temp. scope | ℃ | 2-7 | |
| | Dimension (L×W×H) | External | mm×mm×mm | 900×655×199 | |
| | | Package | mm×mm×mm | 1150×750×300 | |
| | Drainage pipe | (material , I.D./O.D.) | | PVC 18 | |
| | Control type | (wireless/wired) | | wired | |
| | Fresh air hole dimension | | mm | / | |
| | Noise level | (H-M-L) | dB(A) | 48/-/- | |
| | Weight | (net / gross) | kg | 30/39 | |
| Panel | Dimension (L×W×H) | External | mm×mm×mm | / | |
| | | Package | mm×mm×mm | / | |
| | Weight | (net / gross) | kg | / | |
| Outdoor unit | Unit model (color) | | | AU142AFAAA | |
| | Compressor | Model / Manufacture | | PH330/TOHIBA | |
| | | Type | | scroll | |
| | Fan | Type × Number | | Axial-flow×1 | |
| | | Speed | r/min | 820 | |
| | | Air-flow(H-M-L) | m³/h | 700/-/- | |
| | Heat exchanger | Type / Diameter | | TUPU/9.52 | |
| | | Flow | | 2/2 | |
| | | Total area | m² | 0.534 | |
| | | Temp. scope | ℃ | 43-60 | |
| | Dimension (L×W×H) | External | mm×mm×mm | 810×288×680 | |
| | | Package | mm×mm×mm | 960×406×760 | |
| | Drainage pipe | (material , I.D./O.D.) | | PVC,18/20 | |
| | Refrigerant control method | | | Capillary | |
| | Defrosting | | | Auto | |
| | Noise level | (H-M-L) | dB(A) | 52/-/ | |
| | Four way valve | | | / | |
| | Weight | (net / gross) | kg | 59/66 | |
| Piping | Refrigerant | Type | | R22 | |
| | | Charge | kg | 1.77 | |
| | Pipe | Liquid | mm | 6.35 | |
| | | Gas | mm | 15.88 | |
| | | Connect method | | FLARED | |
| | Between I.U. & O.U. | Drop | m | MAX :5 | |
| | | Piping length | m | MAX :15 | |

| Item | | | Model | HCFU-18HC03 | |
|---|---|---|---|---|---|
| Function | | | | Cooling | Heating |
| Capacity | | | BTU/h | 18000 | / |
| Total power input | | | W | 2000 | / |
| EER or COP | | | BTU/W | 9.00 | / |
| Dehumidifying capacity | | | $10^{-3}$×m³/h | 2.1 | |
| Power source | | | PH-V-Hz | 1PH, 220V-230V, 50HZ | |
| Running current/Starting current | | | A | 8/13.8 | / |
| Power cable | | | | / | |
| Indoor unit | Unit model | | | AC182ACABA | |
| | Fan | Type × Number | | CENTRIFUGAL×2 | |
| | | Speed | r/min | 500/450/380 | |
| | | Air-flow(H-M-L) | m³/h | 1050 | |
| | Heat exchanger | Type / Diameter | | TUPU/9.52 | |
| | | Flow | | 2/2 | |
| | | Total area | m² | 0.199 | |
| | | Temp. scope | ℃ | 2-7 | |
| | Dimension (L×W×H) | External | mm×mm×mm | 990×655×199 | |
| | | Package | mm×mm×mm | 1160×760×310 | |
| | Drainage pipe | (material , I.D./O.D.) | | PVC 18/20 | |
| | Control type | (wireless/wired) | | wired | |
| | Fresh air hole dimension | | mm | / | |
| | Noise level | (H-M-L) | dB(A) | 48/-/- | |
| | Weight | (net / gross) | kg | 30/39 | |
| Panel | Dimension (L×W×H) | External | mm×mm×mm | / | |
| | | Package | mm×mm×mm | / | |
| | Weight | (net / gross) | kg | / | |
| Outdoor unit | Unit model | | | AU182AFABA | |
| | Compressor | Model / Manufacture | | PH330/TOSHIBA | |
| | | Type | | scroll | |
| | Fan | Type × Number | | Axial-flow×1 | |
| | | Speed | r/min | 820 | |
| | | Air-flow(H-M-L) | m³/h | 700/-/- | |
| | Heat exchanger | Type / Diameter | | TUPU/9.52 | |
| | | Flow | | 2/2 | |
| | | Total area | m² | 0.225 | |
| | | Temp. scope | ℃ | 43-60 | |
| | Dimension (L×W×H) | External | mm×mm×mm | 810×288×680 | |
| | | Package | mm×mm×mm | 960×406×760 | |
| | Drainage pipe | (material , I.D./O.D.) | | PVC,18/20 | |
| | Refrigerant control method | | | Capillary | |
| | Defrosting | | | Auto | |
| | Noise level | (H-M-L) | dB(A) | 52/-/- | |
| | Four way valve | | | / | |
| | Weight | (net / gross) | kg | 59/66 | |
| Piping | Refrigerant | Type | | R22 | |
| | | Charge | kg | 1.77 | |
| | Pipe | Liquid | mm | 6.35 | |
| | | Gas | mm | 15.88 | |
| | | Connect method | | FLARED | |
| | Between I.U. & O.U. | Drop | m | MAX :5 | |
| | | Piping length | m | MAX :15 | |

| Item | | | Model | HCFU-24H03 | |
|---|---|---|---|---|---|
| Function | | | | Cooling | Heating |
| Capacity | | | BTU/h | 24000 | / |
| Total power input | | | W | 2800 | / |
| EER or COP | | | BTU/W | 8.57 | / |
| Dehumidifying capacity | | | $10^{-3}$×m³/h | 2.1 | |
| Power source | | | PH-V-Hz | 1PH,220V~230V,50Hz | |
| Running current/Starting current | | | A | 11/17.2 | / |
| Power cable | | | | / | |
| Indoor unit | Unit model | | | AC242ACAAA | |
| | Fan | Type × Number | | CENTRIFUGAL×2 | |
| | | Speed | r/min | 1350/-/- | |
| | | Air-flow(H-M-L) | m³/h | 1300 | |
| | Heat exchanger | Type / Diameter | | TUPU/9.52 | |
| | | Flow | | 4/4 | |
| | | Total area | m² | 0.24 | |
| | | Temp. scope | ℃ | 2-7 | |
| | Dimension (L×W×H) | External | mm×mm×mm | 1320×715×235 | |
| | | Package | mm×mm×mm | 1380×770×300 | |
| | Drainage pipe | (material , I.D./O.D.) | | PVC 18/20 | |
| | Control type | (wireless/wired) | | wired | |
| | Fresh air hole dimension | | mm | / | |
| | Noise level | (H-M-L) | dB(A) | 42/-/- | |
| | Weight | (net / gross) | kg | 46/52 | |
| Panel | Dimension (L×W×H) | External | mm×mm×mm | / | |
| | | Package | mm×mm×mm | / | |
| | Weight | (net / gross) | kg | / | |
| Outdoor unit | Unit model | | | AU242AHAAA | |
| | Compressor | Model / Manufacture | | ZR34K3-PFJ-522 / Copeland | |
| | | Type | | scroll | |
| | Fan | Type × Number | | Axial-flow×1 | |
| | | Speed | r/min | 840/-/- | |
| | | Air-flow(H-M-L) | m³/h | 3240 | |
| | Heat exchanger | Type / Diameter | | TUPU/9.52 | |
| | | Flow | | 3/3 | |
| | | Total area | m² | 0.62 | |
| | | Temp. scope | ℃ | 43-60 | |
| | Dimension (L×W×H) | External | mm×mm×mm | 948×830×340 | |
| | | Package | mm×mm×mm | 1050×979×440 | |
| | Drainage pipe | (material , I.D./O.D.) | | PVC,18/26 | |
| | Refrigerant control method | | | Capillary | |
| | Defrosting | | | Auto | |
| | Noise level | (H-M-L) | dB(A) | 58/-/- | |
| | Four way valve | | | / | |
| | Weight | (net / gross) | kg | 74/89 | |
| Piping | Refrigerant | Type | | R22 | |
| | | Charge | kg | 2.48 | |
| | Pipe | Liquid | mm | 9.52 | |
| | | Gas | mm | 15.88 | |
| | | Connect method | | FLARED | |
| | Between I.U. & O.U. | Drop | m | MAX :15 | |
| | | Piping length | m | MAX : 30 | |

| Item | | | Model | HCFU-28HC03 | |
|---|---|---|---|---|---|
| Function | | | | Cooling | Heating |
| Capacity | | | BTU/h | 28000 | / |
| Total power input | | | W | 2800 | / |
| EER or COP | | | BTU/W | 10.0 | / |
| Dehumidifying capacity | | | 10 - ³×m³/h | 3 | |
| Power source | | | PH-V-Hz | 3N,380V~400V,50Hz | |
| Running current/Starting current | | | A | 11/17.2 | / |
| Power cable | | | | / | |
| Indoor unit | Unit model | | | AC282ACABA | |
| | Fan | Type × Number | | CENTRIFUGAL×2 | |
| | | Speed | r/min | 1350/-/- | |
| | | Air-flow(H-M-L) | m³/h | 1300 | |
| | Heat exchanger | Type / Diameter | | TUPU/9.52 | |
| | | Flow | | 4/4 | |
| | | Total area | m² | 0.24 | |
| | | Temp. scope | ℃ | 2-7 | |
| | Dimension (L×W×H) | External | mm×mm×mm | 1320×715×235 | |
| | | Package | mm×mm×mm | 1380×770×300 | |
| | Drainage pipe | (material , I.D./O.D.) | | PVC 18/26 | |
| | Control type | (wireless/wired) | | wired | |
| | Fresh air hole dimension | | mm | / | |
| | Noise level | (H-M-L) | dB(A) | 35/32/29 | |
| | Weight | (net / gross) | kg | 46/52 | |
| Panel | Dimension (L×W×H) | External | mm×mm×mm | / | |
| | | Package | mm×mm×mm | / | |
| | Weight | (net / gross) | kg | / | |
| Outdoor unit | Unit model | | | AU282AHABA | |
| | Compressor | Model / Manufacture | | ZR34K3-PFJ-522 / Copeland | |
| | | Type | | scroll | |
| | Fan | Type × Number | | Axial-flow×1 | |
| | | Speed | r/min | 840/-/- | |
| | | Air-flow(H-M-L) | m³/h | 3240 | |
| | Heat exchanger | Type / Diameter | | TUPU/9.52 | |
| | | Flow | | 6/8 | |
| | | Total area | m² | 0.62 | |
| | | Temp. scope | ℃ | 43-60 | |
| | Dimension (L×W×H) | External | mm×mm×mm | 948×830×340 | |
| | | Package | mm×mm×mm | 1050×979×440 | |
| | Drainage pipe | (material , I.D./O.D.) | | PVC,18/20 | |
| | Refrigerant control method | | | Capillary | |
| | Defrosting | | | Auto | |
| | Noise level | (H-M-L) | dB(A) | 58/-/50 | |
| | Four way valve | | | / | |
| | Weight | (net / gross) | kg | 74/89 | |
| Piping | Refrigerant | Type | | R22 | |
| | | Charge | kg | 2.48 | |
| | Pipe | Liquid | mm | 9.52 | |
| | | Gas | mm | 15.88 | |
| | | Connect method | | FLARED | |
| | Between I.U. & O.U. | Drop | m | MAX :15 | |
| | | Piping length | m | MAX : 30 | |

| Item | | | Model | HCFU-36H03 | |
|---|---|---|---|---|---|
| Function | | | | Cooling | Heating |
| Capacity | | | BTU/h | 36000 | / |
| Total power input | | | W | 3700 | / |
| EER or COP | | | BTU/W | 9.7 | / |
| Dehumidifying capacity | | | $10^{-3} \times m^3/h$ | 5 | |
| Power source | | | PH-V-Hz | 3N, 380V-400V, 50HZ | |
| Running current/Starting current | | | A | 5.0/8.6 | / |
| Power cable | | | | / | |
| Indoor unit | Unit model | | | AC36NACAAA | |
| | Fan | Type × Number | | CENTRIFUGAL×3 | |
| | | Speed | r/min | 1350/-/- | |
| | | Air-flow(H-M-L) | $m^3/h$ | 1600 | |
| | Heat exchanger | Type / Diameter | | TUPU/9.52 | |
| | | Flow | | 3/3 | |
| | | Total area | $m^2$ | 0.4 | |
| | | Temp. scope | ℃ | 2-7 | |
| | Dimension (L×W×H) | External | mm×mm×mm | 1920×715×235 | |
| | | Package | mm×mm×mm | 1980×761×295 | |
| | Drainage pipe (material , I.D./O.D.) | | | PVC 25/32 | |
| | Control type (wireless/wired) | | | wired | |
| | Fresh air hole dimension | | mm | / | |
| | Noise level (H-M-L) | | dB(A) | 56/-/- | |
| | Weight (net / gross) | | kg | 73/81 | |
| Panel | Dimension (L×W×H) | External | mm×mm×mm | / | |
| | | Package | mm×mm×mm | / | |
| | Weight (net / gross) | | kg | / | |
| Outdoor unit | Unit model | | | AU36NAIAAA | |
| | Compressor | Model / Manufacture | | H23A46QDBEA / BRISTOL | |
| | | Type | | scroll | |
| | Fan | Type × Number | | Axial-flow×2 | |
| | | Speed | r/min | 840/-/- | |
| | | Air-flow(H-M-L) | $m^3/h$ | 6000 | |
| | Heat exchanger | Type / Diameter | | TUPU/9.52 | |
| | | Flow | | 6/8 | |
| | | Total area | $m^2$ | 0.92 | |
| | | Temp. scope | ℃ | 43-60 | |
| | Dimension (L×W×H) | External | mm×mm×mm | 948×1225×340 | |
| | | Package | mm×mm×mm | 1050×1375×440 | |
| | Drainage pipe (material , I.D./O.D.) | | | PVC,18/20 | |
| | Refrigerant control method | | | Capillary | |
| | Defrosting | | | Auto | |
| | Noise level (H-M-L) | | dB(A) | 64/-/- | |
| | Four way valve | | | / | |
| | Weight (net / gross) | | kg | 88/108 | |
| Piping | Refrigerant | Type | | R22 | |
| | | Charge | kg | 3.2 | |
| | Pipe | Liquid | mm | 9.52 | |
| | | Gas | mm | 19.05 | |
| | | Connect method | | FLARED | |
| | Between I.U. & O.U. | Drop | m | MAX :30 | |
| | | Piping length | m | MAX : 50 | |

| Item | | | Model | HCFU-42HC03 | |
|---|---|---|---|---|---|
| Function | | | | Cooling | Heating |
| Capacity | | | BTU/h | 42000 | // |
| Total power input | | | W | 4800 | / |
| EER or COP | | | BTU/W | 8.75 | / |
| Dehumidifying capacity | | | $10^{-3} \times m^3/h$ | 5 | |
| Power source | | | PH-V-Hz | 3N, 380V-400V, 50HZ | |
| Running current/Starting current | | | A | 7.7/12 | |
| Power cable | | | | / | |
| Indoor unit | Unit model | | | AC42NACABA | |
| | Fan | Type × Number | | CENTRIFUGAL×3 | |
| | | Speed | r/min | 1350/-/- | |
| | | Air-flow(H-M-L) | $m^3/h$ | 2040 | |
| | Heat exchanger | Type / Diameter | | TUPU/9.52 | |
| | | Flow | | 6/8 | |
| | | Total area | $m^2$ | 0.4 | |
| | | Temp. scope | ℃ | 2-7 | |
| | Dimension (L×W×H) | External | mm×mm×mm | 1920×715×235 | |
| | | Package | mm×mm×mm | 1980×761×295 | |
| | Drainage pipe (material , I.D./O.D.) | | | PVC 25/32 | |
| | Control type (wireless/wired) | | | wireless | |
| | Fresh air hole dimension | | mm | / | |
| | Noise level (H-M-L) | | dB(A) | 56/-/- | |
| | Weight (net / gross) | | kg | 73/81 | |
| Panel | Dimension (L×W×H) | External | mm×mm×mm | / | |
| | | Package | mm×mm×mm | / | |
| | Weight (net / gross) | | kg | / | |
| Outdoor unit | Unit model | | | AU42NAIAEA | |
| | Compressor | Model / Manufacture | | H23A62QDBEA/BRISTOL | |
| | | Type | | scroll | |
| | Fan | Type × Number | | Axial-flow×2 | |
| | | Speed | r/min | 840/-/- | |
| | | Air-flow(H-M-L) | $m^3/h$ | 6000 | |
| | Heat exchanger | Type / Diameter | | TUPU/9.52 | |
| | | Flow | | 5/5 | |
| | | Total area | $m^2$ | 0.92 | |
| | | Temp. scope | ℃ | 43-60 | |
| | Dimension (L×W×H) | External | mm×mm×mm | 948×1225×340 | |
| | | Package | mm×mm×mm | 1050×1375×440 | |
| | Drainage pipe (material , I.D./O.D.) | | | PVC,18/20 | |
| | Refrigerant control method | | | Capillary | |
| | Defrosting | | | Auto | |
| | Noise level (H-M-L) | | dB(A) | 64/-/- | |
| | Four way valve | | | / | |
| | Weight (net / gross) | | kg | 91/111 | |
| Piping | Refrigerant | Type | | R22 | |
| | | Charge | kg | 3.82 | |
| | Pipe | Liquid | mm | 9.52 | |
| | | Gas | mm | 19.05 | |
| | | Connect method | | FLARED | |
| | Between I.U. & O.U. | Drop | m | MAX :30 | |
| | | Piping length | m | MAX : 50 | |

# 3 SAFETY PRECAUTIONS

- Please read these "Safety Precautions" first then accurately execute the installation work.
- Though the precautionary points indicated herein are divided under two headings, △WARNING and △CAUTION those points which are related to the strong possibility of an installation done in error resulting in death or serious injury are listed in the △WARNING section. However, there is also a possibility of serious consequences in relationship to the points listed in the △CAUTION section as well.
  In either case, important safety related information is indicated, so by all means, properly observe all that is mentioned.
- After completing the installation, along with confirming that no abnormalities were seen from the operation tests, please explain operating methods as well as maintenance methods to the user (customer) of this equipment, based on the owner's manual.
  Moreover, ask the customer to keep this sheet together with the owner's manual.

## △ WARNING

- This system should be applied to places of office, restaurant, residence and the like. Appliaction to inferior environment such as engineering shop could cause equipment malfunction.
- Please entrust installation to either the company which sold you the equipment or to a professional contractor. Defects from improper installations can be the cause of water leakage, electric shocks and fires.
- Execute the installation accurately, based on following the installation manual. Again, improper installations can result in water leakage, electric shocks and fires.
- When a large air-conditioning system is installed to a small room, it is necessary to have a prior planned countermeasure for the rare case of a refrigerant leakage, to prevent the exceeding of threshold concentration. In regards to preparing this countermeasure, consult with the company from which you purchased the equipment, and make the installation accordingly. In the rare event that a refrigerant leakage and exceeding of threshold concentration does occur,there is the danger of a resultant oxygen deficiency accident.
- For installation, confirm that the installation site can sufficiently support heavy weight. When strength is insufficient, injury can result from a falling of the unit.
- Execute the prescribed installation construction to prepare for earthquakes and the strong winds of typhoons and hurricanes, etc. Improper installations can result in accidents due to a violent falling over of the unit.
- For electrical work, please see that a licensed electrician executes the work while following the safety standards related to electrical equipment, and local regulations as well as the installation instructions, and that only exclusive use circuits are used.
  Insufficient power source circuit capacity and defective installment execution can be the cause of electric shocks and fires.
- Accurately connect wiring using the proper cable, and insure that the external force of the cable is not conducted to the terminal connection part, through properly securing it. Improper connection or securing can result in heat generation or fire.
- Take care that wiring does not rise upward, and accurately install the lid/service panel. Its improper installation can also result in heat generation or fire.

## △ WARNING

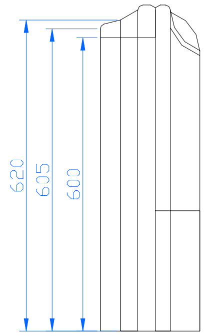
- When setting up or moving the location of the air conditioner, do not mix air etc. or anything other than the designated refrigerant (please see nameplate) within the refrigeration cycle.
- Rupture and injury caused by abnormal high pressure can result from such mixing.
  Always use accessory parts and authorized parts for installation construction. Using parts not authorized by this company can result in water leakage, electric shock, fire and refigerant leakage.
- The position of indoor unit must be above the floor 2.5m.

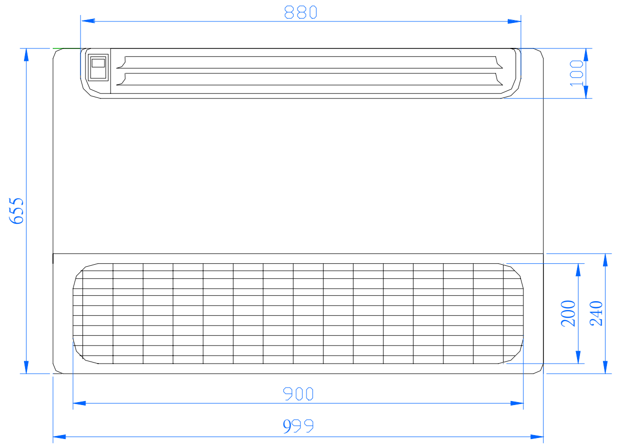
## △ CAUTION

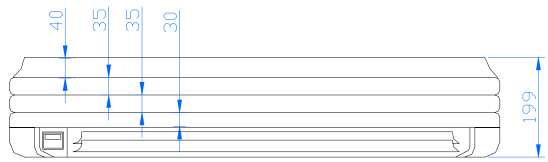
- Execute proper grounding. Do not connect the ground wire to a gas pipe, water pipe, lightening rod or a telephone ground wire.
  Improper placement of ground wires can result in electric shock.
- The installation of an earth leakage breaker is necessary depending on the established location of the unit. Not installing an earth leakage breaker may result in electric shock.
- Do not install the unit where there is a concern about leakage of combustible gas.
  The rare event of leaked gas collecting around the unit could result in an outbreak of fire.
- For the drain pipe, follow the installation manual to insure that it allows proper drainage and thermally insulate it to prevent condensation. Inadequate plumbing can result in water leakage and water damage to interior items.

# 4 NET DIMENSIONS OF INDOOR AND OUTDOOR UNIT

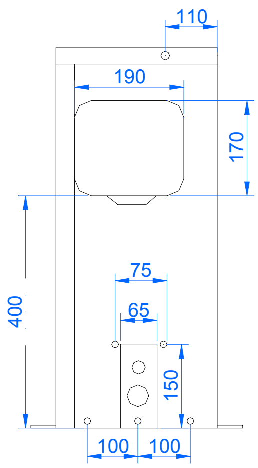
**Model: HCFU-14H03 HCFU-18HC03  Indoor unit**

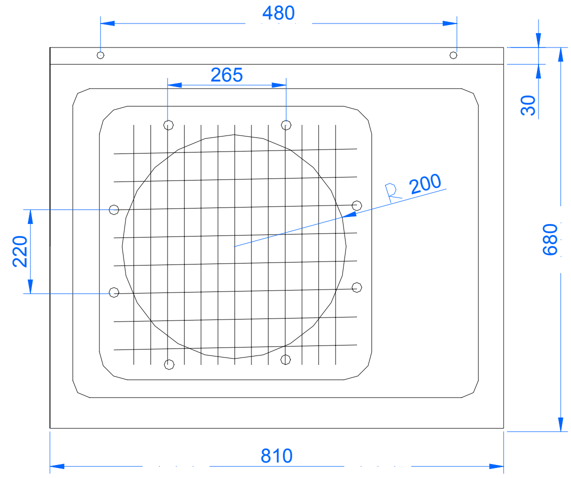


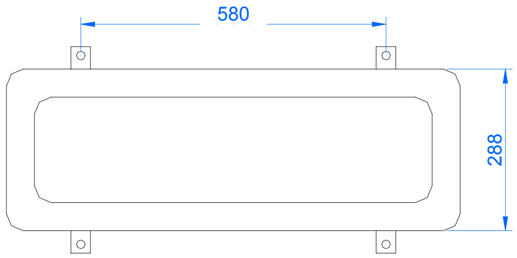



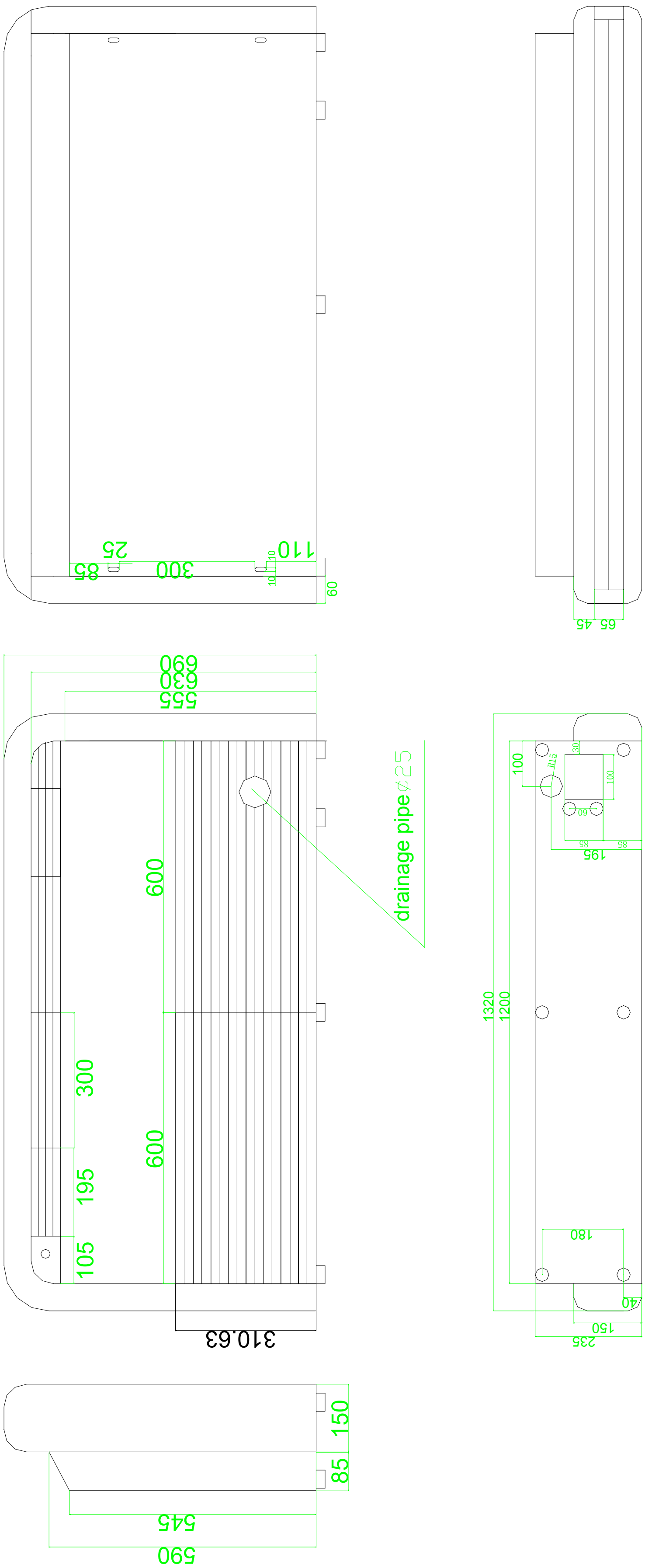

**Model: HCFU-14H03 HCFU-18HC03  Outdoor unit**



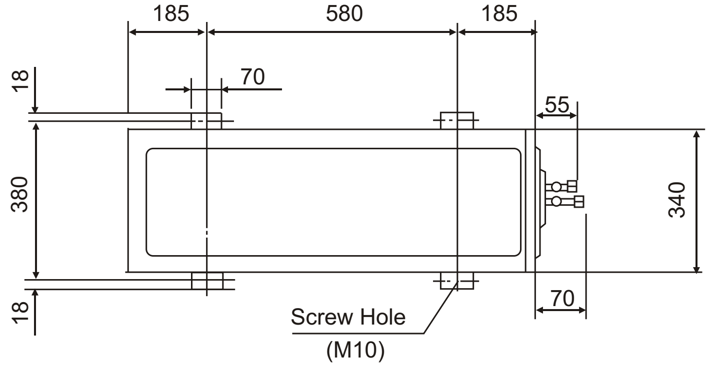



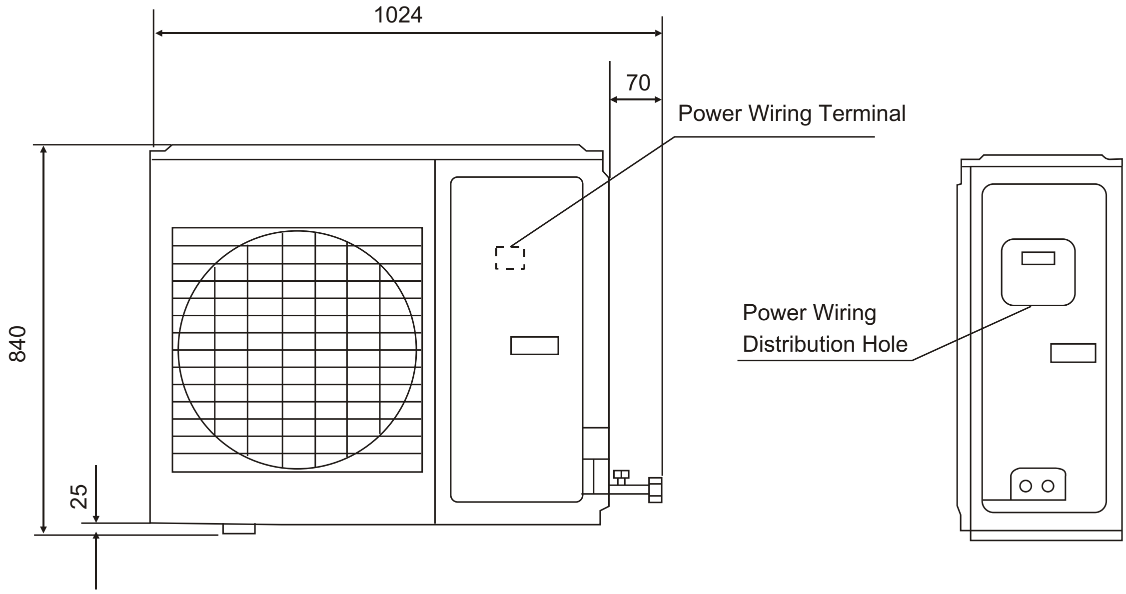



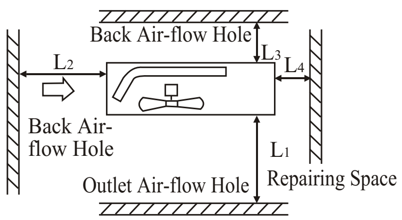
**Model: HCFU-24H03  HCFU-28HC03  Indoor unit**



**Model: HCFU-24H03 HCFU-28HC03 Outdoor unit**




Note (1) Fix the parts with screws

(2)Don't intake the strong wind directly to the outlet air-flow hole.

(3)A one meter distance should be kept from the unit top

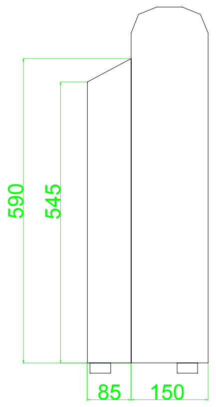
(4)Don't block the surroudings of the unit with sundries.

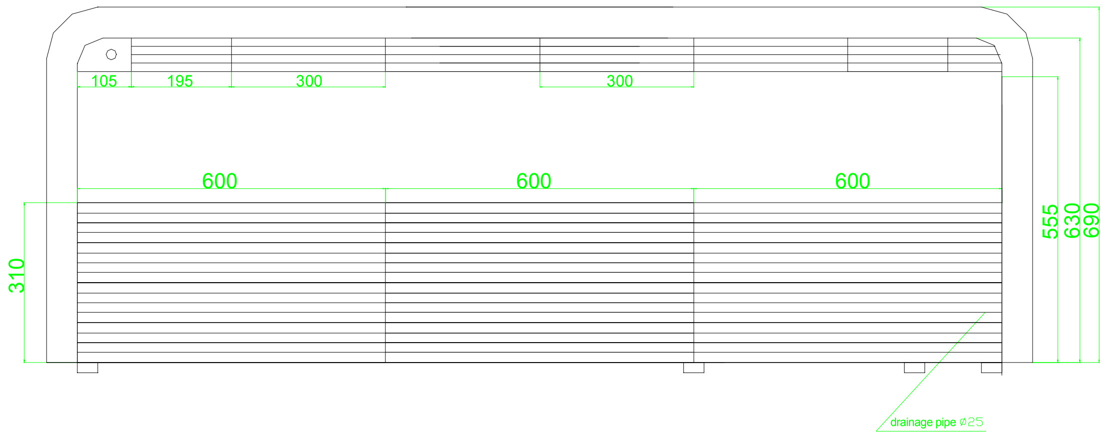
Installation Servicing Space(at Least)

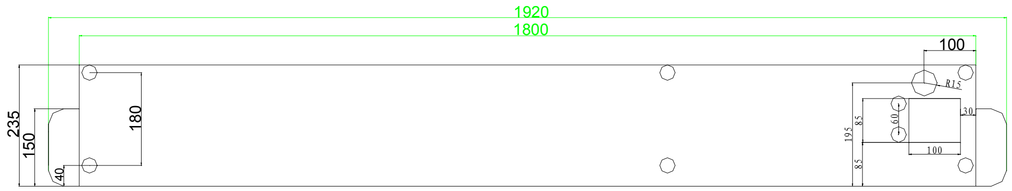
Unit:mm

| Installation / Dimension | I | II | III |
|---|---|---|---|
| $L_1$ | Leave space | Leave space | 500 |
| $L_2$ | 300 | 0 | Leave space |
| $L_3$ | 100 | 150 | 100 |
| $L_4$ | 0 | 0 | 0 |

**Model: HCFU-36H03  HCFU-42HC03  Indoor unit**

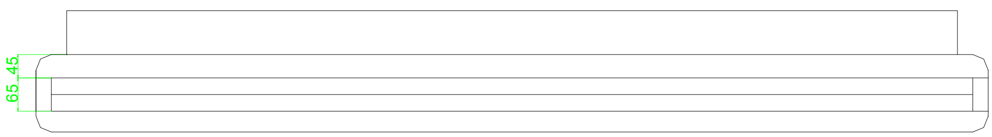


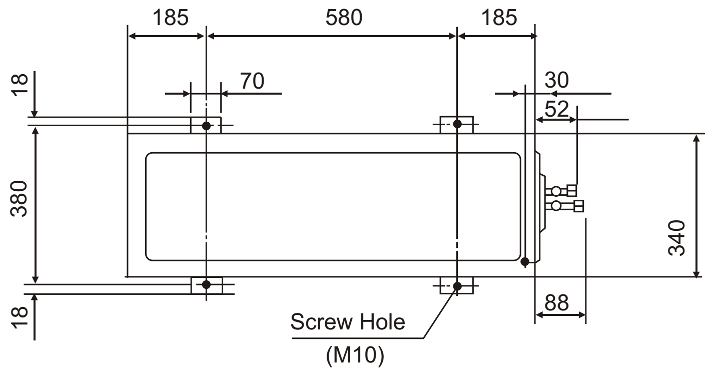



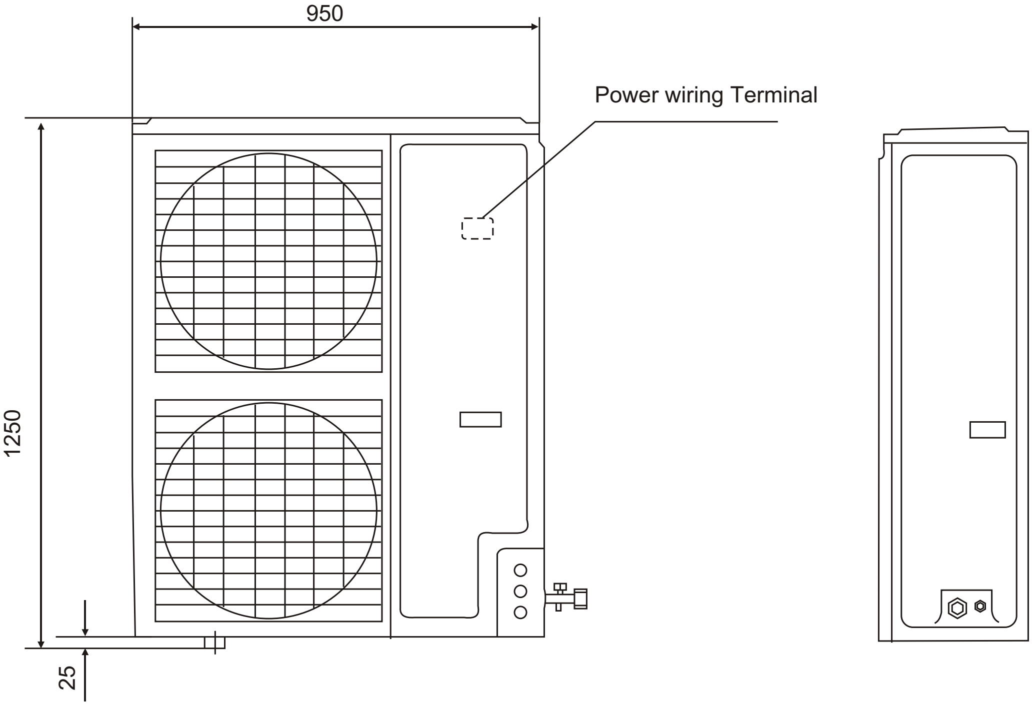


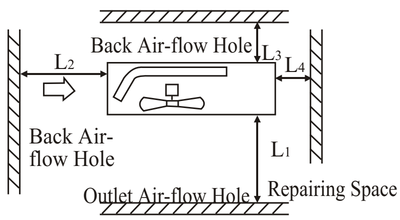




**Model: HCFU-36H03  HCFU-42HC03 Outdoor unit**




Installation Servicing Space(at Least)

Unit:mm

| Installation / Dimension | I | II | III |
|---|---|---|---|
| $L_1$ | Leave space | Leave space | 500 |
| $L_2$ | 300 | 0 | Leave space |
| $L_3$ | 100 | 150 | 100 |
| $L_4$ | 0 | 0 | 0 |

Note : (1). Fix the parts with screws
(2).Don't intake the strong wind directly to the outlet air-flow hole.
(3).A one meter distance should be kept from the unit top
(4).Don't block the surroundings of the unit with sundries

# 5 INSTALLATION INSTRUCTIONS

For authorized service personnel only

| ⚠ WARNING |
|---|
| (1) For the room air conditioner to operate satisfactorily, install it as outlined in this installation manual. |
| (2) Connect the indoor unit and outdoor unit with the room air conditioner piping and cords available from our standard parts. This installation manual describes for the correct connections so that the installation set available from our standard parts should be used. |
| (3) Installation work must be performed in accordance with national wiring standards by authorized personnel only. |
| (4) Never cut the power cord, lengthen or shorten the cord, or change the plug. |
| (5) Also, do not use an extension cord. |
| (6) Plug in the power cord plug firmly. If the receptacle is loose, repair it before using the room air conditioner. |
| (7) Do not turn on the power until all installation work is done. |

- Be careful not to scratch the room air conditioner when handing it.
- After installation, explain correct operation to the customer, according to the operating manual.
- Let the customer keep this installation manual because it will be used when the room air conditioner is serviced or moved.

## SELECTING THE MOUNTING POSITION

| ⚠ WARNING |
|---|
| Install at a place that can withstand the weight of the indoor and outdoor units and install positively so that the units will not topple or fall. |

| ⚠ CAUTION |
|---|
| (1)Do not install where there is the danger of combustible gas leakage. |
| (2) Do not install near heat sources. |
| (3) If children under 10 years old may approach the unit, take preventive measures so that they cannot reach the unit. |

Decide the mounting position with the customer as follows:

### 1. INDOOR UNIT

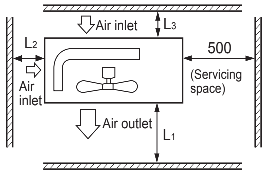
(1) Install the indoor unit level on a strong wall, floor, ceiling which is not subject to vibration.
(2) The inlet and outlet ports should not be obstructed: the air should be able to blow all over the room.
(3) Install the unit near an electric outlet or special branch circuit.
(4) Do not install the unit where it will be exposed to direct sunlight.
(5) Install the unit where connection to the outdoor unit is easy.
(6) Install the unit where the drain pipe can be easily installed.
(7) Take servicing, etc. into consideration and leave the spaces shown in Fig.1. Also install the unit where the filter can be removed.

NOTE: The appearance may be different from models.

### 2. OUTDOOR UNIT

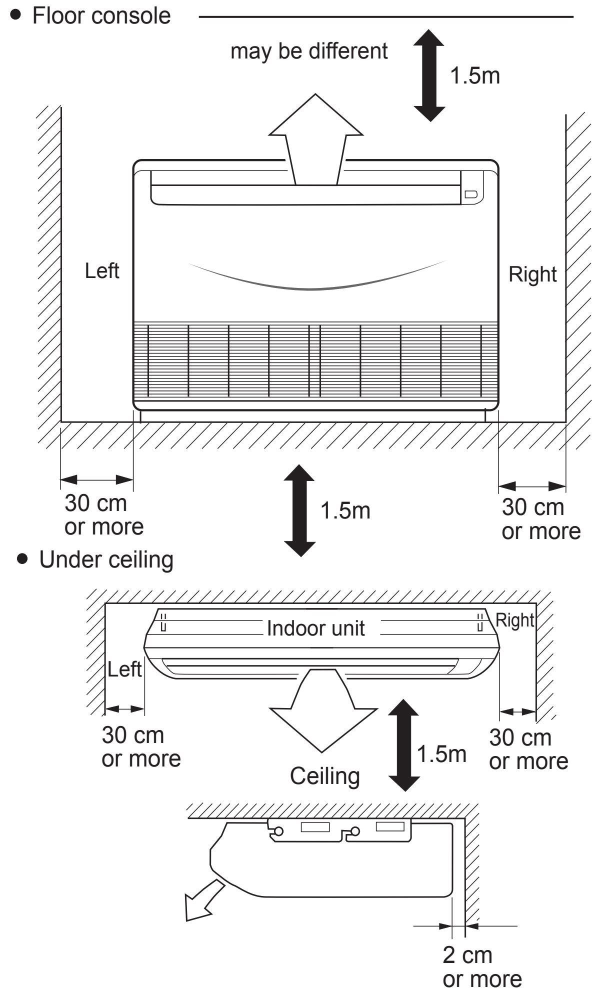
| ⚠ WARNING |
|---|
| (1) Install the unit where it will not be tilted by more than 5• |
| (2) When installing the outdoor unit where it may be exposed to the strong wind, fasten it securely. |

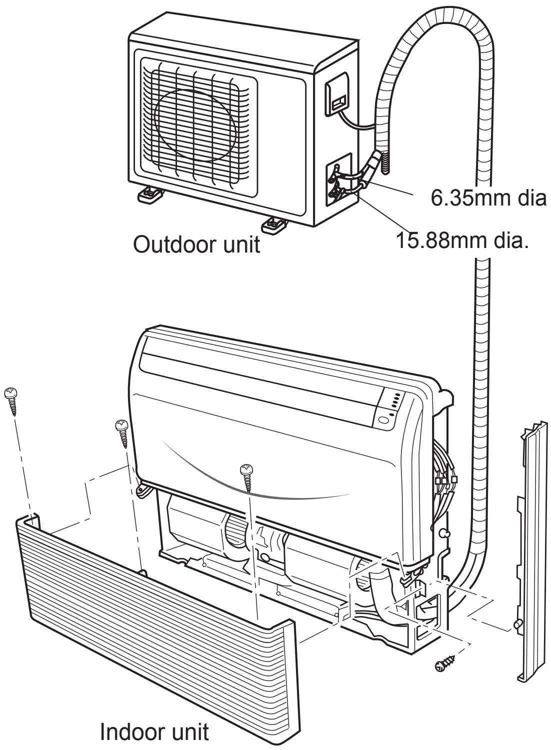
(1) If possible, do not install the unit where it will be exposed to direct sunlight.(If necessary, install a blind that does not interfere with the air flow.)
(2) Install the outdoor unit in a place where it will be free from being dirty or getting wet by rain as much as possible.
(3) Install the unit where connection to the indoor unit is easy.
(4) During heating operation, drain water flows from the outdoor unit. Therefore, install the outdoor unit in a place where the drain water flow will not be obstructed.(Reverse cycle model only)
(5) Do not place animals and plants in the path of the warm air.
(6) Take the weight of the air conditioner into account and select a place where noise and vibration are small.
(7) Select a place where the warm air and noise from the air conditioner do not disturb neighbors.
(8) Provide the space shown in Fig.2 so that the air flow is not blocked. Also for efficient operation, leave open three of the four directions front, rear, and both sides.




| Series | 24,28 | | | 36,42 | | |
|---|---|---|---|---|---|---|
| Case Distance | I | II | III | I | II | III |
| $L_1$ | open | open | 500 | open | open | 500 |
| $L_2$ | 300 | 0 | open | 300 | 0 | open |
| $L_3$ | 100 | 150 | 100 | 150 | 300 | 150 |

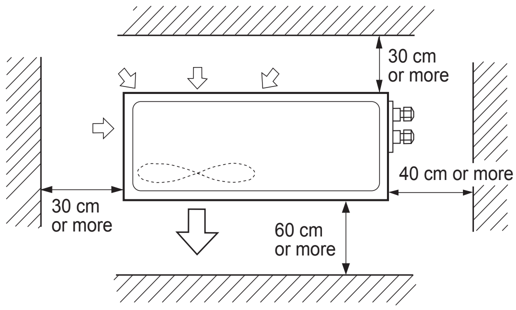
Fig. 1



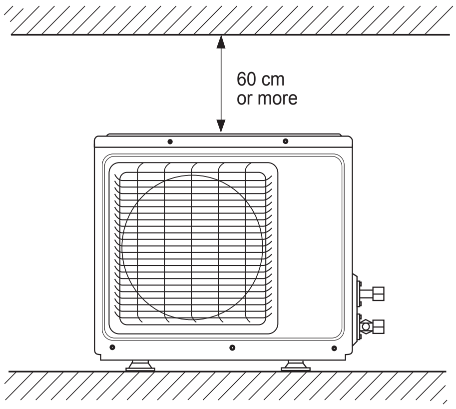



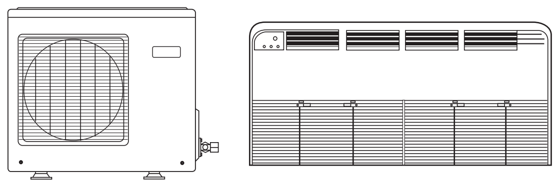

For series 14,18

Fig. 2

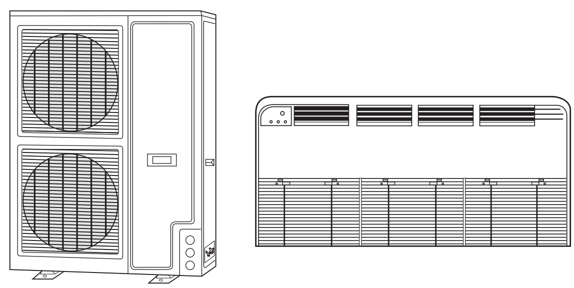



For series 14,18



For series24, 28



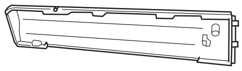
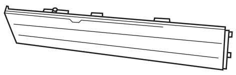
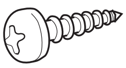
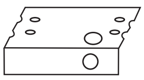
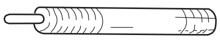
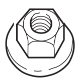
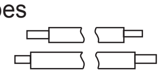
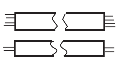
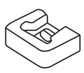
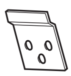
For series 36,42

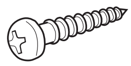
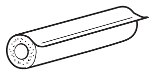
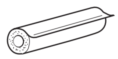
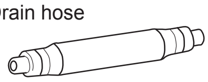
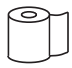
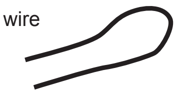
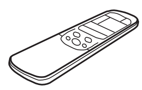
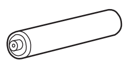
Note: For series 36, 42 no floor console type, the function below about floor console is invalid to the series.

# STANDARD PARTS

The following installation parts are furnished.
Use them as required.

## ACCESSORIES

| Name and shape | Q'ty | Application |
|---|---|---|
| Cover plate (left)  | 1 | For series 24,28, 36,42 the two cover plate are not available |
| Cover plate (right)  | 1 | |
| Tapping screw (Ø 4x10)  | 2 | |
| Installation template  | 1 | For positioning the indoor unit<br>For under ceiling type. |
| Anchor bolt  | 4 | For suspending the indoor unit from ceiling |
| Spring washer  | 4 | |
| Special nut  | 4 | |
| Pipe hole cover  | 1 | |
| Wall hole cover  | 1 | |
| Main pipes  | 1 | |
| Connecting cables  | 1 | |
| Cushion  | 4 | |
| Drain-elbow  | 1 | Only for the heat pump type |
| Wall bracket  | 2 | For suspending the indoor unit on the wall.For series 24,28,36,42 no this part. |

| Name and shape | Q'ty | Application |
|---|---|---|
| Tapping screw (Ø4x20)  | 6 | For fixing the wall bracket.<br>For series 24,28,36,42 no this part. |
| Coupler heat insulator(large)  | 1 | For indoor side pipe joint (Large pipe) |
| Coupler heat insulator(small)  | 1 | For indoor side pipe joint (Small pipe) |
| Nylon fastener  | 1 | For fixing the drain hose |
| Drain hose  | 1 | |
| Non-adhesive tape  | 1 | |
| VT wire  | 1 | For fixing the drain hose L 280mm<br>For series 24,28,36,42 VT wire is not available |
| Remote controller  | 1 | Use for air conditioner operation |
| Battery  | 2 | For remote controller unit |

Optional parts

| Mark | Parts name |
|---|---|
| Ⓐ | Adhesive tape |
| Ⓑ | Saddle (L.S) with screws |
| Ⓒ | Connecting electric cable for indoor and outdoor |
| Ⓓ | Drain hose |
| Ⓔ | Heat insulation material |
| Ⓕ | Piping hole cover |
| Ⓖ | Putty |
| Ⓗ | Plastic clamp |

# CONNECTION PIPE REQUIREMENT

Table 1

| Series | Diameter | | Maximum length | Maximum height (between indoor and outdoor) |
|---|---|---|---|---|
| | Liquid side | Gas side | | |
| 14,18 | 6.35 mm | 15.88 mm | 15 m | 5 m |
| 24,28 | 9.52 mm | 15.88 mm | 30 m | 15 m |
| 36,42 | 9.52 mm | 19.05mm | 50 m | 15 m |

# INSTALLATION PROCEDURE

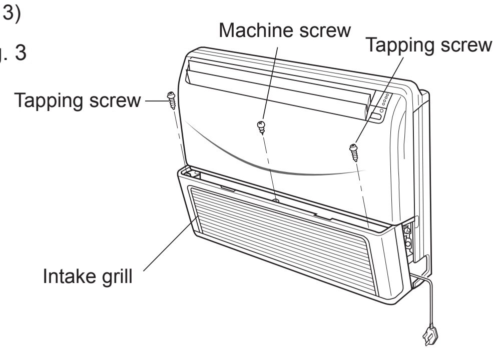
Install the room air conditioner as follows:

## PREPARING INDOOR UNIT INSTALLATION

### 1. REMOVE THE INTAKE GRILL

Open the intake grill and remove the three or four or six screws. (Fig. 3)

Fig. 3




Remark: The main unit can be wired before the indoor unit is installed. Select the most appropriate installation order.

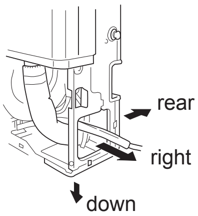
For series 24,28,36,42 not the power plug, but 3-core connecting cable.

### A. FLOOR CONSOLE TYPE (For series 36,42 no this type )

1. DRILLING FOR PIPING

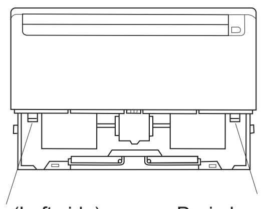
Select piping and drain directions.(Fig.4) (For series 14,18)
The piping and drain can be made in three directions as shown below.For series 24,28,36,42 can be made rear and down two directions.

(Fig. 4)



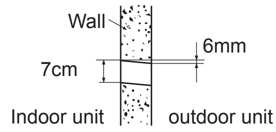

The drain hose can be connected to either the left or right side.(Fig.5)
For series 24,28,36,42 only right side.

(Fig. 5)



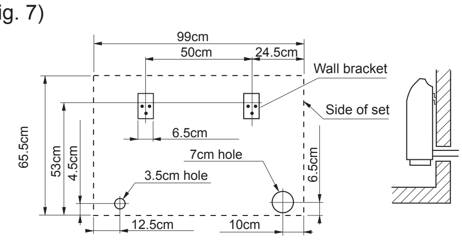

When the directions are selected, drill a 7 cm dia. hole on the wall so that the hole is tilted downward toward the outdoor for smooth water flow. When the pipe is led out from the rear, make a hole in Fig.6, at the position shown.

(Fig. 6)




For series 14,18 when installing set to wall, install the accessory wall bracket at the position shown in Fig.7, and mount the set to it.

(Fig. 7)

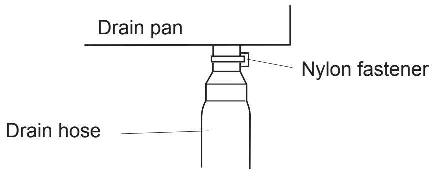



INSTALL THE DRAIN HOSE

### 2. INSTALLING DRAIN HOSE

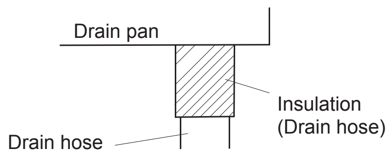
Select whether the drain hose will be connected to the left or right side.(for series 24,28,36,42 only the right side).(Fig.5)
Insert the drain hose into the drain pan, then secure the drain hose with a nylon fastener. (Fig.8)

(Fig. 8)



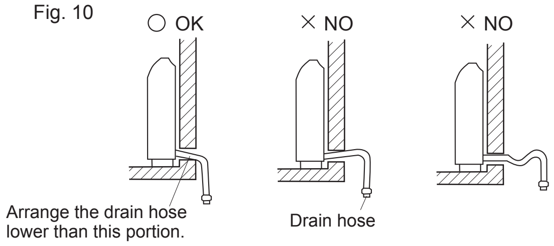

Wrap the insulation (drain hose) around the drain hose connection.(Fig.9)

(Fig. 9)




Be sure to arrange the drain hose correctly so that it is leveled lower than the drain hose connecting port of the indoor unit.

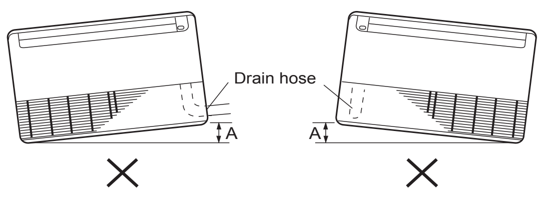
Fig. 10




**⚠ CAUTION**

Do not install the unit drain hose side is too high. Height A should be less than 5 mm.(Fig.11)

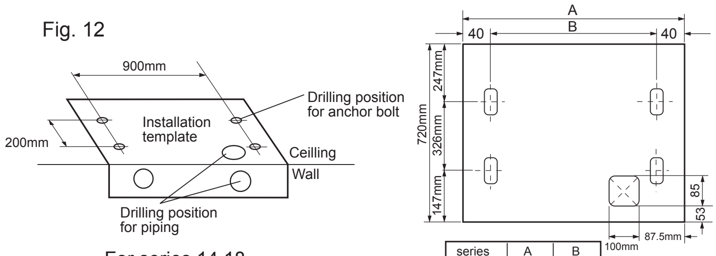
Fig. 11



## B. UNDER CEILING TYPE

Using the installation template, drill holes for piping and anchor bolts(for holes).(Fig.12)

Fig. 12



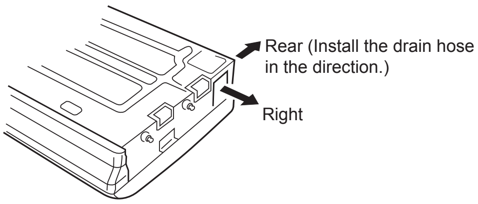

| series | A | B |
|---|---|---|
| 24,28 | 1320 | 1240 |
| 36,42 | 1920 | 1840 |

For series 14,18

1. DRILLING FOR PIPING

Select piping and drain directions. For series 24,28,36,42 only rear side(Fig.13)

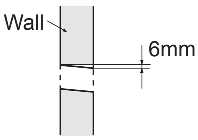
Fig. 13




### ⚠ CAUTION

Install the drain hose at the rear; it should not be installed on the top or right side.

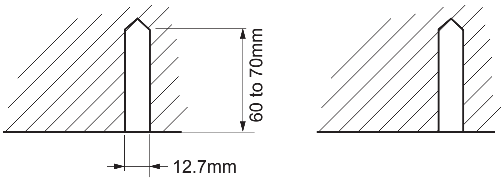
When the directions are selected, drill 80mm and 50mm or 150mm dia. hole on the wall so that the hole is tilted downward toward the outdoor for smooth water flow.




2. DRILLING HOLES FOR ANCHOR BOLTS AND INSTALLING THE ANCHOR BOLTS

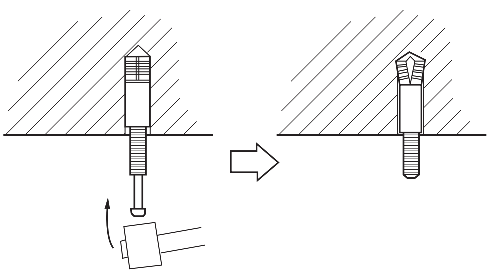
With a concrete drill, drill four 12.7 mm dia. Holes.(Fig.15)

Fig. 15




Insert the anchor bolts into the drilled holes, and drive the pins completely into the anchor bolts with a hammer. (Fig. 16)

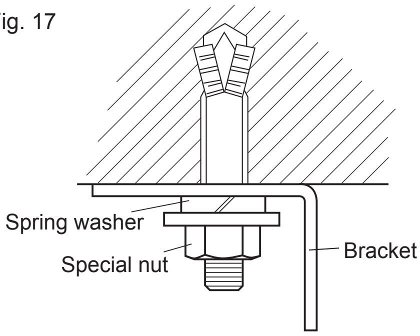
Fig. 16

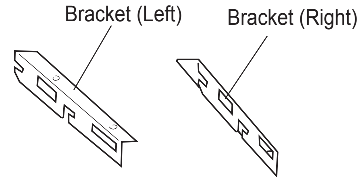


3. INSTALLING BRACKETS

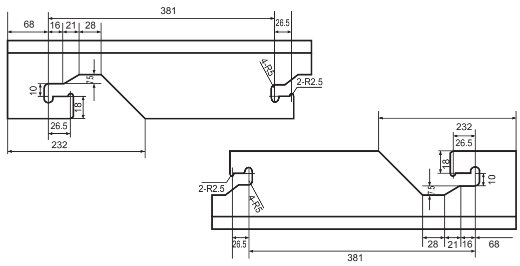
Install the brackets with nuts, washers and spring washers.(Fig. 17)

Fig. 17




For series 14,18

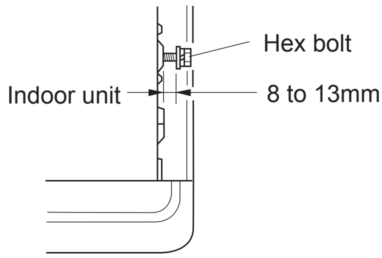



For series 24,28,36,42

4. INSTALLING INDOOR UNIT

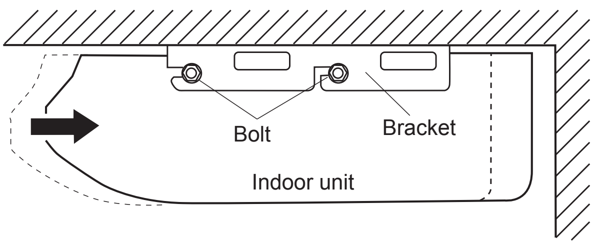
Reset the hex bolts as shown in Fig.18.

Fig. 18




Apply the indoor unit to the brackets.(Fig.19)

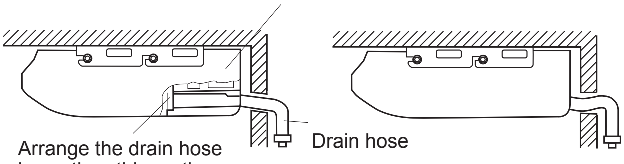
Fig. 19




Now, securely tighten the hex bolts in both sides.

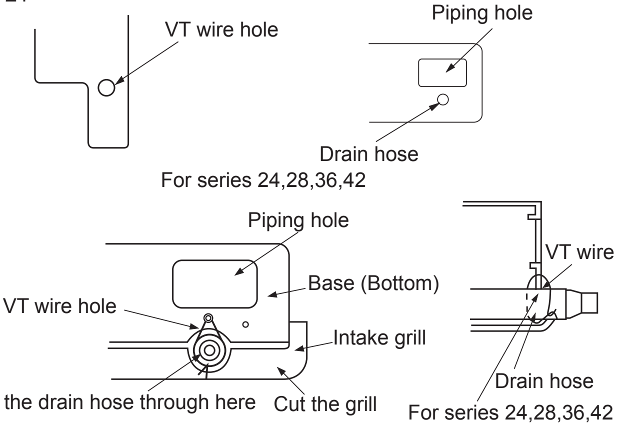
5. INSTALL THE DRAIN HOSE
Select whether the drain hose will be connected to the left or right side.(Fig.5)
Insert the drain hose into the drain pan, then secure the drain hose with a nylon fastener.(Fig.8)
Wrap the insulation (drain hose)around the drain hose connection.(Fig.9)
Be sure to arrange the drain hose correctly so that it is leveled lower than the drain hose connecting port of the indoor unit.(Fig.20)

Fig. 20




When drain hose is arranged backward.Secure the drain hose with the VT wire. (Fig. 21)

Fig. 21




# OUTDOOR UNIT INSTALLATION

## CONNECTING THE PIPING

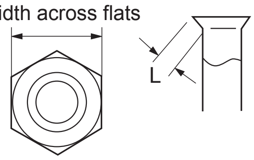
1. FLARE PROCESSING

(1) Cut the connection pipe with pipe cutters so that the pipe is not deformed.
(2) Holding the pipe downward so that cuttings cannot enter the pipe, remove the burrs.
(3) Remove the flare nut from the indoor unit pipe and outdoor unit and assemble as shown in(Table1) and insert the flare nut onto the pipe, and flare with a flaring tool.
(4) Check if the flared part "L" (Fig.22)is spread uniformly and that there are no cracks.

Table 1

| Pipe | Flare nut |
|---|---|
| Small pipe | Small (width across flats 22mm) |
| Large pipe | Large (width across flats 24mm) |

Fig. 22

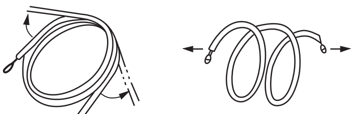



L dimension
Liquid pipe
1.6 to 1.8mm(6.35mm dia)
Gas pipe
2.2 to 2.4mm(15.88mm dia)
Gas pipe
3.4 to 2.6mm(19.05mm)
Liquid pipe
1.8 to 2.0mm(9.52mm)

2. BENDING PIPES

The pipes are shaped by your hands. Be careful not to collapse them.

Fig. 23




Extend the pipe by unwinding it

⚠ WARNING

BE SURE TO READ THESE INSTRUCTIONS. CAREFULLY BEFORE BEGINNING INSTALLATION. FAILURE TO FOLLOW THESE INSTRUCTIONS COULD CAUSE SERIOUS INJURY OR DEATH, EQUIPMENT MALFUNCTION AND /OR PROPERTY DAMAGE. BE SURE TO READ INSTALLATION MANUAL FOR INDOOR UNIT WITH THIS MANUAL.

### 1. Selection of the place of installation

Select the place of installation satisfying the following conditions and, at the same time, obtain consent from the client or user.

- Place where air circulates.
- Place free from heat radiation from other heat sources.
- Place where drain water may be discharged.
- Place where noise and hot air may not disturb the neighbors.
- Place where there is not heavy snowfall in winter.
- Place where obstacles do not exist near the inlet air port and outlet air port.
- Place where the outlet port may not be exposed to a strong wind.
- Place surrounded at four sides are not suitable for installation.
  A 1m or more of overhead space is needed for the unit.
- Mount guide-louvers to place where short-circuit is a possibllity.
- When installing several units, secure sufficient suction space to avoid short circuiting.

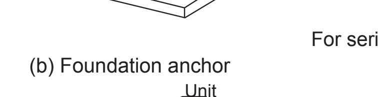
### 2. Installation of outdoor unit

(1) Installation

Fix the unit in a proper way according to the condition of a place where it is installed by referring to the following.

Fig. 25

(a) Concrete foundation(Fig. 25)




For series 14,18

(b) Foundation anchor

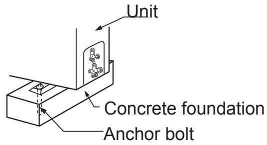
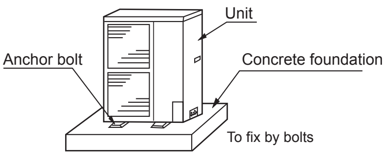
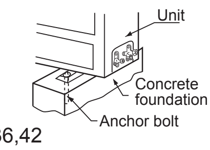


Fig. 25

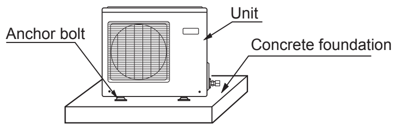
(a) Concrete foundation




(b) Foundation anchor




For series 36,42




For series 24,28

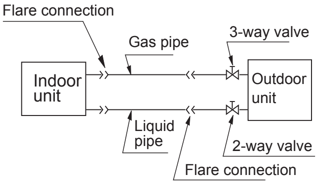
Note (1)Give enough room for the concrete foundation to fix anchor bolts.

Note (1)Place the concrete foundation deep enough.

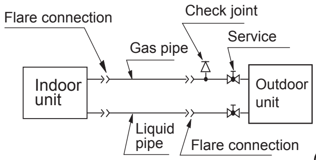
- Install the unit so that the angle of inclination must be less than 3 degrees.

## 3. Refrigerant piping

(1) Outline of piping




For series 14,18

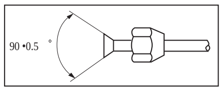



For series 24,28,36, 42

(2) Piping size

| | | |
|---|---|---|
| Series 14,18 | Liquid pipe | Φ 6.35x0.8mm |
| | Gas pipe | Φ 15.88x1.0mm |
| Series 24,28 | Liquid pipe | Φ 9.52x0.8mm |
| | Gas pipe | Φ 15.88x1.0mm |
| Series 36,42 | Liquid pipe | Φ 9.52x0.8mm |
| | Gas pipe | Φ 19.05x1.0mm |

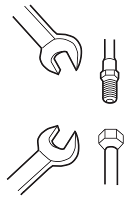
- Install the removed flare nuts to the pipes to be connected, then flare the pipes.




(3) Limitations for one way piping length and vertical height difference.

- One way piping length: Less than 15 mm
- Vertical height difference: Less than 5 m

(Fig. 26)



Precautions for refrigerant piping

- Do not twist or crush piping.
- Be sure that no dust is mixed in piping.
- Bend piping with as wide angle as possible.
- Keep insulating both gas and liquid piping.
- Check flare-connected area for gas leakage.

(4) Piping connection (Fig.26)

- Connecting method
  Apply refrigerant oil at half union as large and flare nut.
  To bend a pipe, give the roundness as possible not to crush the pipe.
  When connecting pipe, hold the pipe centre to centre then screw nut on by hand, refer to Fig.
  Be careful not to let foreign matters, such as sands enter the pipe.

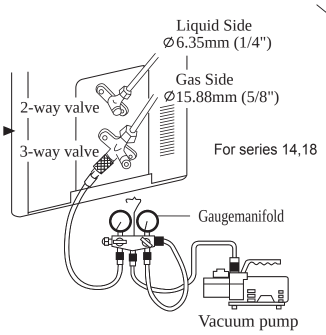
Forced fastening without centering may damage the threads and cause a gas leakage.

| Pipe dia | Fastening torque |
|---|---|
| Liquid pipe 6.35mm | 18N·m |
| Gas pipe 15.88mm | 60N·m |
| Liquid pipe 9.52mm | 40N·m |
| Gas pipe 19.05mm | 110N·m |

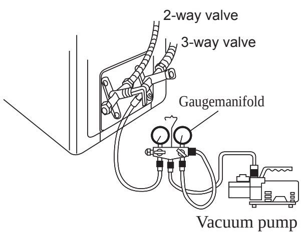
(5) Purging mehtod ( the refrigerant is R407C )

To use vacuum pump

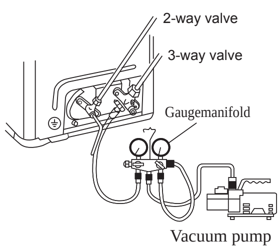
① Detach the service port's cap of 3-way valve, the valve rod's cap for 2-way valve and 3-way's, connect the service port into the projection of charge hose (low) for gaugemanifold. Then connect the projection of charge hose (center) for gaugemanifold into vacuum pump.




For series 14,18




For series 24,28

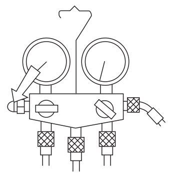



For series 36,42

②

Open the handle at low in gaugemanifold, operate vacuum pump. If the scale-moves of gause (low) reach vacuum condition in a moment, check ① again.

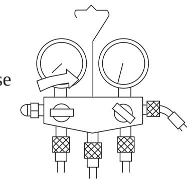
② Open



③

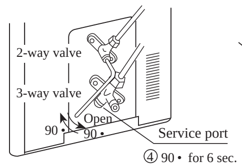
Vacuumize for over 15min. And check the level gauge which should read -0.1 MPa (-76 cm Hg) at low pressure side. After the completion of vacuumizing, close the handle 'Lo' in gaugemanifold and stop the operation of the vacuum pump.
Check the condition of the scale and hold it for 1-2min. If the scale-moves back in spite of tightening, make flaring work again, the return to the beginning of ③.

③ Close

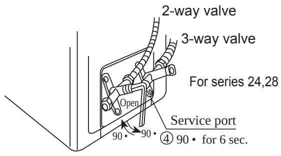


④

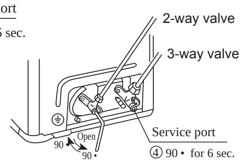
Open the valve rod for the 2-way valve to and angle of anticlockwise 90 degree.
After 6 seconds later, close the 2-way valve and male the inspection of gas leakage.




For series 14,18




For series 24,28




For series 36,42

⑤

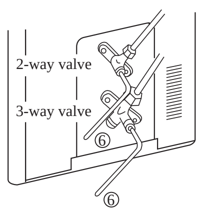
No gas leakage?

In case of gas leakage, tighten parts of pipe connection. If leakage stops, then procee ⑥ steps.

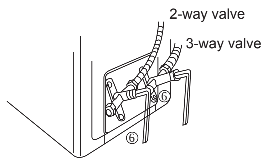
If it does not stop gas leakage, discharge whole refrigerants from the serice port. After flaring work again and vacuumize, fill up prescribed refrigerant from the gas cylinder.

⑥

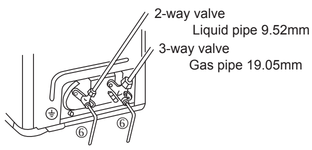
Detach the charge hose from the service port, open 2-way valve and 3-way. Turn the valve rod anticlockwise until hitting lightly.




For series 14,18




For series 24,28




For series 36,42

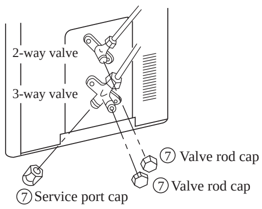
⑦

To prevent the gas leakage, turn the service port's cap, the valve rod'd cap for 2-way valve and 3-way's a lottle more than the point where the torque increases suddenly.

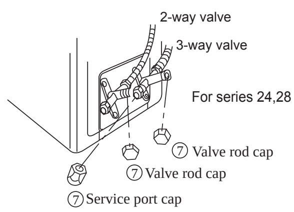
⑧

After attaching the each caps, check the gas leakage around the caps.

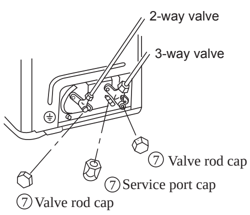
**CAUTION:**
If the refrigerant of the air conditioner leaks, it is necessary to make all the refrigerant out, then charge the liquid refrigerant into air conditioner according to the amount marked on the name plate.




For series 14,18




For series 24,28




For series 36,42

If needing to remove the refrigerant gas when installation or repair , please refer to the following procedures:

1. Cut off the power
2. (After confirming the power is cut off) pull the power cable plug terminals of the low-pressure pressure-switch out.
3. (After confirming the power cable terminals of the low-pressure pressure-switch is cut off) After powering on the unit again and switch to COOLING mode,perform refrigerant gas removing according to the normal refrigerant gas removing procedure.
4. After finishing refrigerant gas removing , cut off the power , then insert the power cable terminals of the low-pressure pressure-switch properly.

# GAS LEAKAGE INSPECTION

| ⚠ CAUTION |
|---|
| After connecting the piping, check the joints for gas leakage with gas leakage detector. |

# HOW TO CONNECT WIRING TO THE TERMINALS

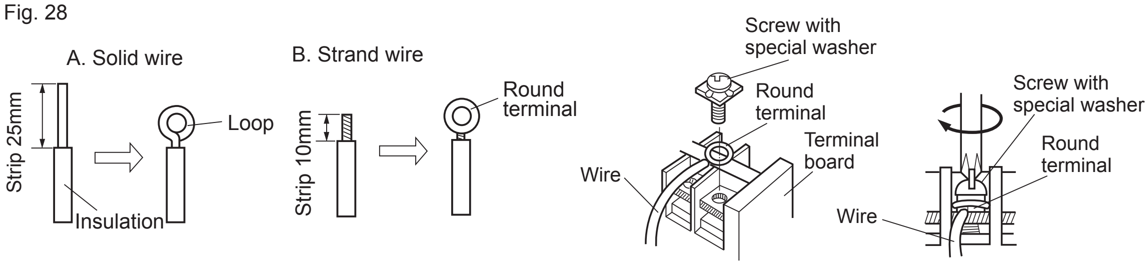
A. For solid core wiring (or F-cable)(Fig.28A)

(1) Cut the wire with a wire cutter or wire-cutting pliers, then strip the insulation to about 25mm of the exposed solid wire.
(2) Using a screwdriver, remove the terminal screw(s) on the terminal board.
(3) Using pliers, bend the solid wire to form a loop suitable for the terminal screw.
(4) Shape the loop wire properly, place it on the terminal board and tighten securely with the terminal screw using a screw driver.

B. For strand wiring(Fig.28B)

(1) Cut the wire with a wire cutter or wire-cutting pliers, then strip the insulation to about 10mm of the exposed strand wiring.
(2) Using a screwdriver, remove the terminal screw(s)on the terminal board.
(3) Using a round terminal fastener or pliers, securely clamp a round terminal to each stripped wire end.
(4) Position the round terminal wire, and replace and tighten the terminal screw using a screw driver.

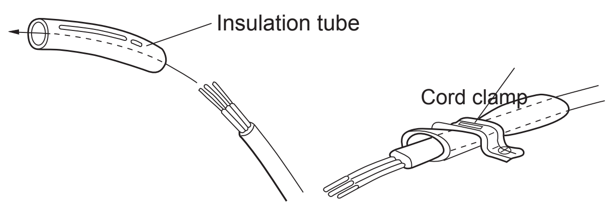
Fig. 28




HOW TO FIXED CONNECTION CORD AND POWER CABLE AT THE CORD CLAMP

After passing the connection cord and power cable through the insulation tube, fasten it with the cord clamp, as shown in Fig.29

Fig. 29




Use VW-1, 0.5 to 1.0 mm thick, PVC tube as the insulation tube.

## ELECTRICAL REQUIREMENT

- Electric wire size and fuse capacity:

Table 5

| Series | | 14,18 | | 24,28 | 36,42 |
|---|---|---|---|---|---|
| Connection cord ($mm^2$) | MAX | 3.5 | 3.5 | 3.5 | 3.5 |
| | MIN | 2.5 | 2.5 | 2.5 | 2.0 |
| Fuse capacity(A) | | 20 | 30 | 30 | 30 |

## ELECTRICAL WIRING

**⚠ CAUTION**

(1) Match the terminal block numbers and connection cord colors with those of the outdoor unit. Erroneous wiring may cause burning of the electric parts.

(2) Connect the connection cords firmly to the terminal block. Imperfect installation may cause a fire.

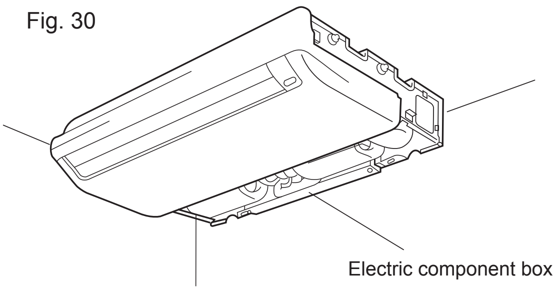
(3) Always fasten the outside covering of the connection cord with the cord clamp.(If the insulator is chafed, electric leakage may occur.)

(4) Always connect the ground wire.

## 1. INDOOR UNIT SIDE

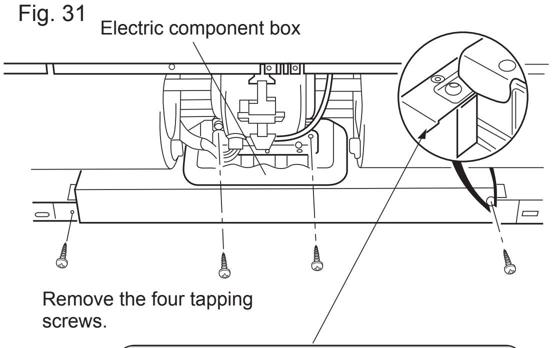
(1) Remove the electric component box.

Fig. 30




## INDOOR UNIT SIDE

Fig. 31

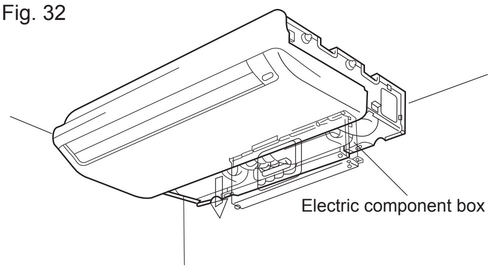



**⚠ CAUTION**

Do not remove the screws. If the screws are removed, the electric component box will fall.

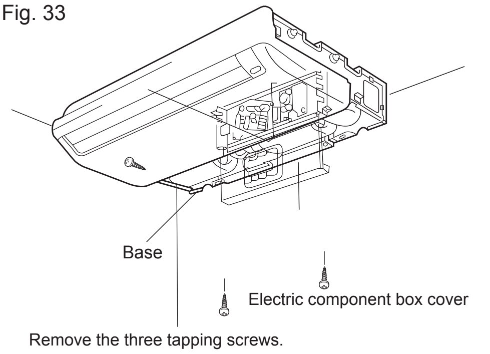
(2) Pull out the electric component box.

Fig. 32




(3) Remove the electric component box cover.

Fig. 33




**⚠ CAUTION**

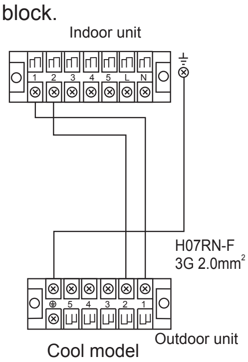
Be careful not to pinch the lead wires between the electric component box and base.

(4) Wiring

(1) Remove the cord clamp.

(2) Process the end of the connection cords to the dimensions shown in Fig.34.

(3) Connect the end of the connection cord fully into the terminal block.

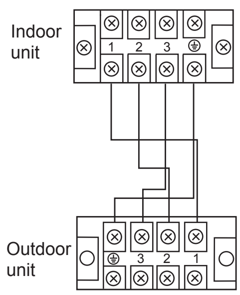



For series 14,18

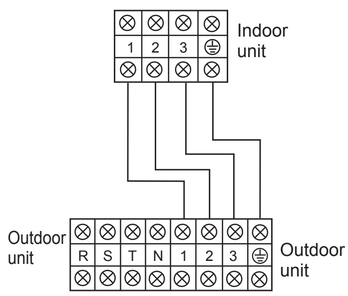
(4) Fasten the connection cord with a cord clamp.

(5) Fasten the end of the connection cord with the screw.

(6) For series 24,28,36,42,the power cable and connecting are self-provided.




For series 14,28




For series 36,42

ELECTRICAL WIRING

**⚠ WARNING**

| |
|---|
| (1) Always use a special branch circuit and install a special receptacle to supply power to the room air conditioner. |
| (2) Use a circuit breaker and receptacle matched to the capacity of the room air conditioner. |
| (3) The circuit breaker is installed in the permanent wiring. Always use a circuit that can trip all the poles of the wiring and has an isolation distance of at least 3mm between the contacts of each pole. |
| (4) Perform wiring work in accordance with standards so that the room air conditioner can be operated safely and positively. |
| (5) Install a leakage circuit breaker in accordance with the related laws and regulations and electric company standards. |

**⚠ CAUTION**

| |
|---|
| (1) The power source capacity must be the sum of the room air conditioner current and the current of other electrical appliances. When the current contracted capacity is insufficient, change the contracted capacity. |
| (2) When the voltage is low and the air conditioner is difficult to start, contact the power company the voltage raised. |

## TEST RUNNING

1. CHECK ITEMS

(1) INDOOR UNIT

(1) Is operation of each button on the remote control unit normal?
(2) Does each lamp light normally?
(3) Do not air flow direction louvers operate normally?
(4) Is the drain normal?

(2) OUTDOOR UNIT

(1) Is there any abnormal noise and vibration during operation?
(2) Will noise, wind, or drain water from the unit disturb the neighbors?
(3) Is there any gas leakage?

## CUSTOMER GUIDANCE

Explain the following to the customer in accordance with the operating manual:

(1) Starting and stopping method, operation switching, temperature adjustment, timer, air flow switching, and other remote control unit operations.
(2) Air filter removal and cleaning, and how to use air louvers.
(3) Give the operating and installation manuals to the customer.

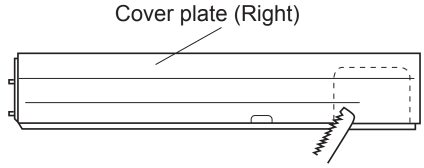
## MOUNT THE COVER PLATE AND THE INTAKE GRILL

Note: The following installing procedure only for series 14,18

1.Mount the cover plate. (Right)

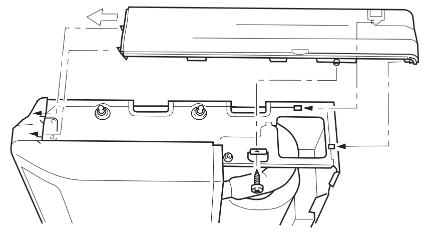
(1) Cut a pipe exit hole in the right plate. This is only when the pipe exits from the right side.(This operation is not required when the protrusion is on the top or rear.)

Fig. 35




(2) Join the cover plates (right) and mount with screws.

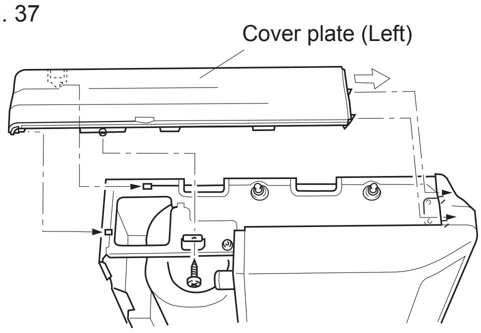
Fig. 36



2. Mount the cover plate.(Left)

(1) Join the cover plate (left) and mount with screws.

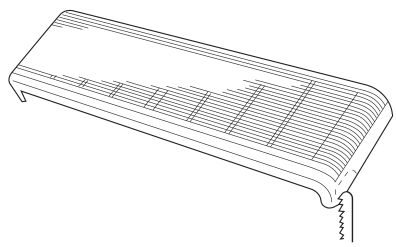
Fig. 37




3. Mount the intake grill.

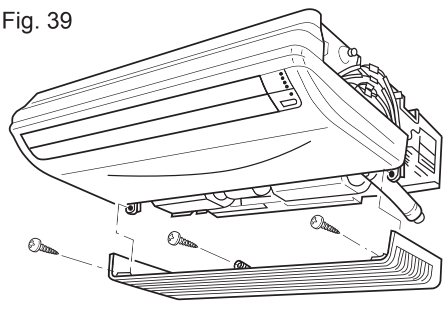
(1) Cut the right side of the intake grill. This is only when the pipe exits from the right side

Fig. 38



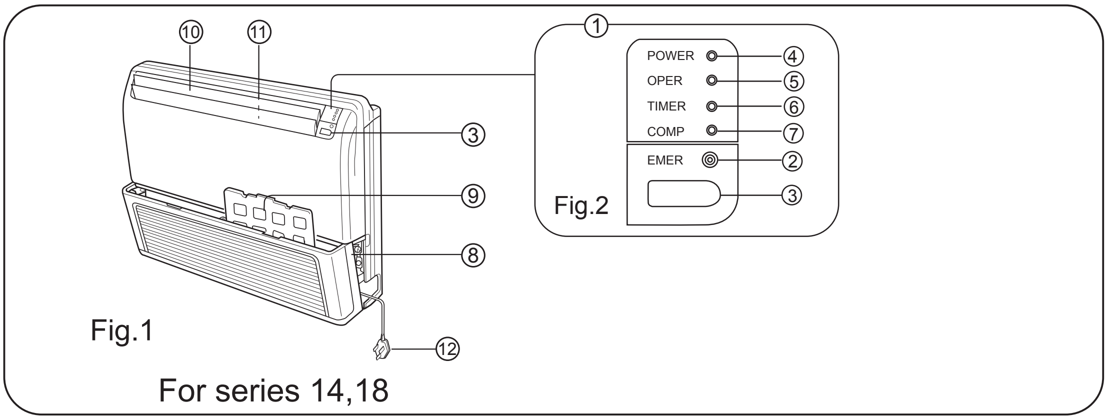
(2) Insert the hinges on the bottom of the intake grill into the holes in the base assembly. Then mount the arms to the three areas on the top of the intake grill.

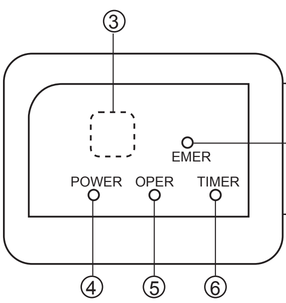
Fig. 39

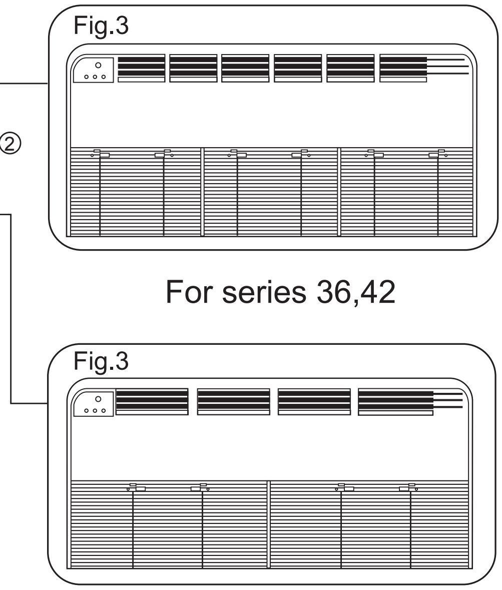


# 6 PARTS AND FUNCTIONS

## 6.1 Drawings



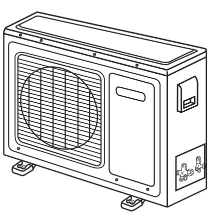



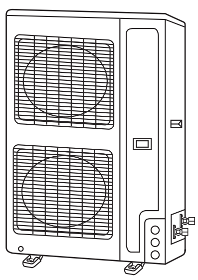

For series 24,28

Fig.1 Indoor Unit

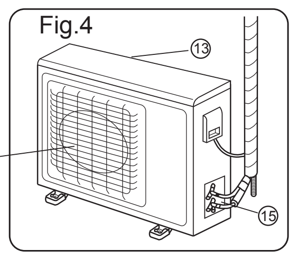
① Operating Control Panel (Fig.2)
② Emergency switch
③ Remote Control Signal Receiver
④ Power Indicator Lamp (Red)
⑤ OPERATION Indicator Lamp (Green)
⑥ TIMER Indicator Lamp (Yellow)
⑦ Compressor Run Lamp (Green)
⑧ Intake Grill (Fig.3)
⑨ Air Filter
⑩ UP/DOWN Air Direction Flaps
⑪ RIGHT/LEFT Air Direction Louvers (behind UP/DOWN Air Direction Flaps)
⑫ Power Plug



For series 24,28



For series 36,42




For series 14,18

Fig.4 Outdoor Unit

⑬ Intake grill ⑭ Outlet grill ⑮ Pipe Unit

# 7 REMOTE CONTROLLER FUNCTIONS

## INTRODUCTION TO SPARE PARTS

Buttons and display of the remote controller.

**Power ON/OFF**
Used for unit start and stop.

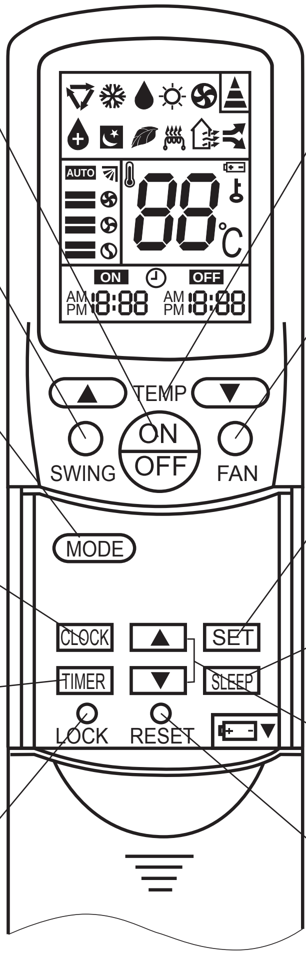
**SWING**
Used to set auto fan direction.

**MODE**
Used to select AUTO run, COOL,DRY,HEAT and FAN operation.

**CLOCK**
Used to set correct time.

**TIMER**
Used to select
TIMER ON, TIMER OFF, TIMER ON/OFF.

**LOCK**
Used to lock buttons and LCD display.




**TEMP**
Used to select your desired temp.

**FAN**
Used to select fan speed: LO, MID, HI, AUTO

**SET**
Used to confirm Timer and Clock settings.

**SLEEP**
Used to select sleep mode.

**HOUR**
Used to set clock and timer setting.

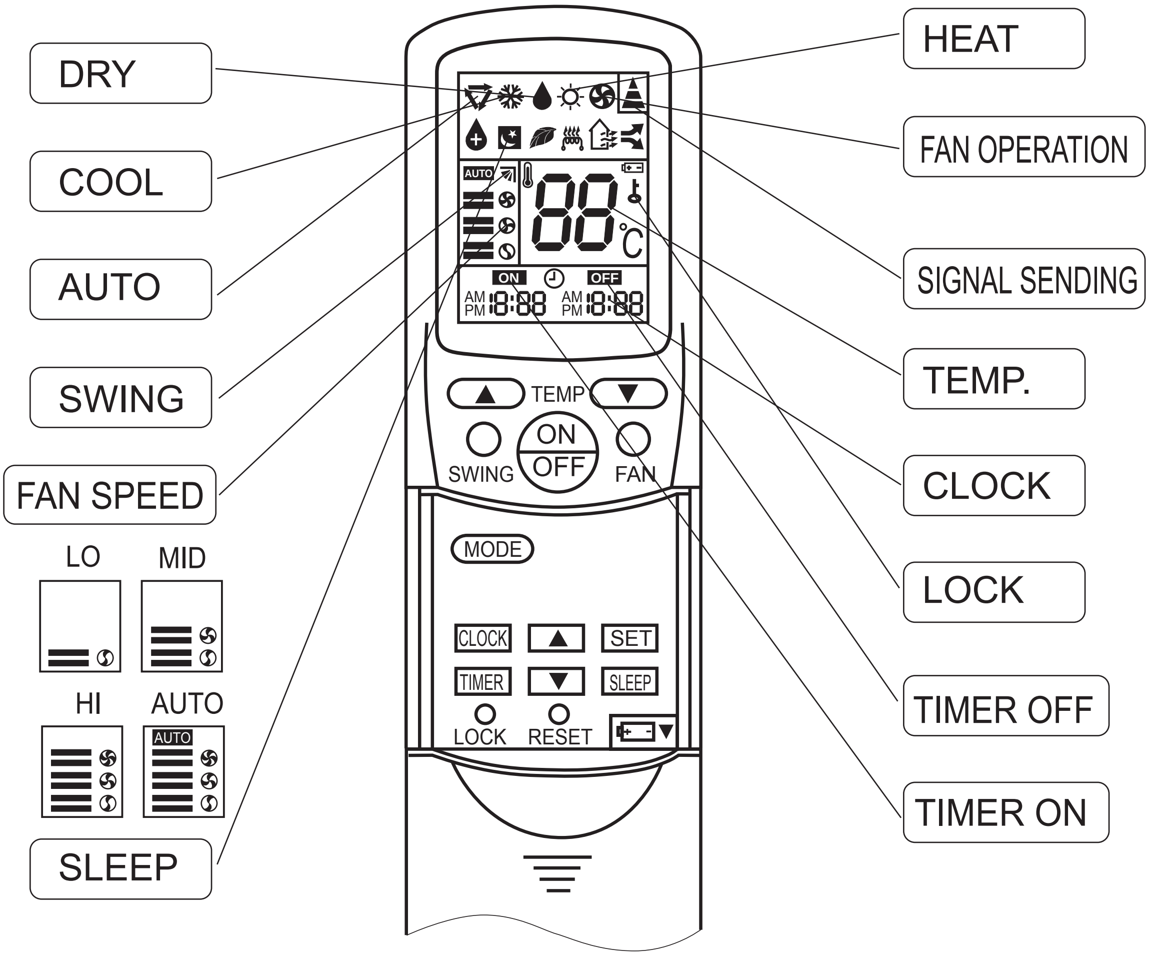
**RESET**
Used to reset the controller back to normal condition.

Cautions:
On cooling only unit, heating mode is not available.
After replacing batteries, press ON/OFF, and display becomes as follows:
Operation mode: AUTO, Temp: 24℃
Timer mode: No, Fan speed: AUTO

Note:
1. The above information is the explanation of the displayed information therefore varies with those displayed in actual operation.
2. This type only has the relevant function and display as indicated in the above figure.

# INTRODUCTION TO SPARE PARTS

Buttons and display of the remote controller.



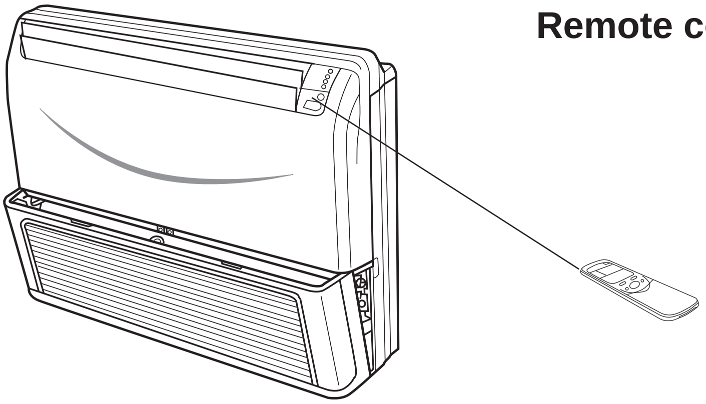

## Clock set

When unit is started for the first time and after replacing batteries in remote controller, clock should be adjusted as follows:
Press CLOCK button, "AM" or "PM" flashes.
Press ▲ or ▼ to set correct time. Each press will increase or decrease 1min. If the button is kept depressed, time will change quickly.
After time setting is confirmed, press SET, "AM "and "PM" stop flashing, while clock starts working.

### Hints

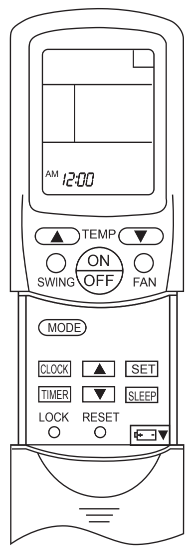
After replacing with new batteries, remote controller will conduct self-check, displaying all information on LCD. Then, it will become normal.

# REMOTE CONTROLLER OPERATION



## Remote controller's operation

- When in use, put the signal transmission head directly to the receiver hole on the indoor unit.
- The distance between the signal transmission head and the receiver hole should be within 7m without any obstacle as well.
- Don't throw the controller, prevent it from being damaged.
- When electronic-started type fluorescent lamp or change-over type fluorescent lamp or wireless telephone is installed in the room, the receiver is apt to be disturbed in receiving the signals so the distance to the indoor unit should be shorter.




### Loading of the battery

Load the batteries as illustrated.
2R-03 batteries, resetting key (cylinder)

### Remove the battery cover :

Slightly press "▼ " and push down the cover.

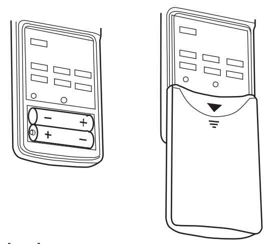
### Load the battery :

Be sure that the loading is in line with the " + " / " - " pole request as illustrated.

### Put on the cover again

### Confirmation indicator :

In disorderation, reload the batteries or load the new batteries after 5mins.



### Note :

Use two new same-typed batteries when loading.
If the remote controller can't run normally or doesn't work at all, use a sharp pointed item to press the reset key.

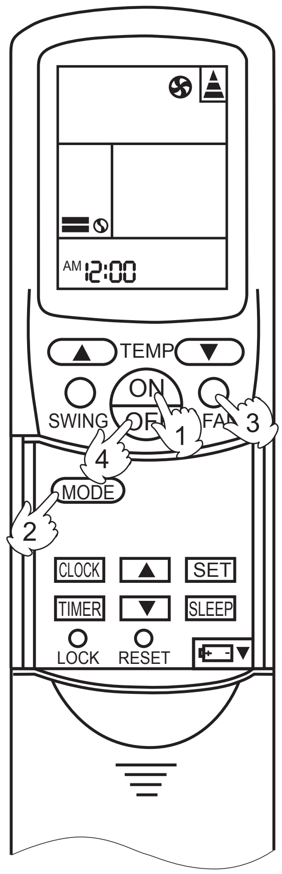
**Hint :** Remove the batteries in case unit won't be in usage for a long period.
If there is any display after taking-out just need to press reset key.

# GUIDE TO OPERATION

## FAN operation

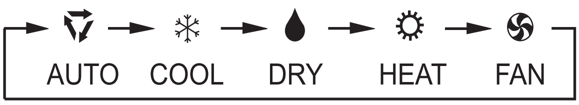
### (1) Unit start

Press ON/OFF button, unit starts.
Previous operation status appears on display.
(Not Timer setting)
Power indicator on indoor unit lights up.




### (2) Select operation mode

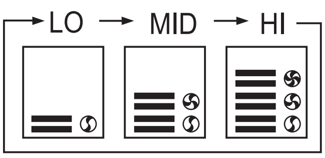
Press MODE button. For each press, operation mode changes as follows:




Unit will run in selected mode.
stop display at " " FAN.

### (3) Fan

Press FAN button. For each press, fan speed changes as follows:




Unit will run at selected fan speed.
Adjust air flow direction if necessary, refer to page13.

### (4) Unit stop

Press ON/OFF button.
Only time remains on LCD.
All indicators on indoor unit go out.
Vertical flap closed automatically.

### Hints

Remote controller can memorize settings in each operation mode. To run it next time just select the operation mode and it will start with the previous setting.
No reselecting is needed.(TIMER ON/OFF needs reselecting)

# GUIDE TO OPERATION

## AUTO run, COOL,HEAT and DRY operation

**Recommendations**

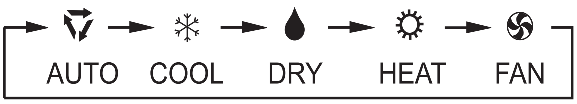
- Use COOL in summer.
- Use HEAT in winter.
- Use DRY in spring,autumn and in damp climate.

### (1) Unit start

Press ON/OFF button, unit starts.
Previous operation status appears on display.(Not Timer setting)
Power indicator on indoor unit lights up.

### (2) Select operation mode

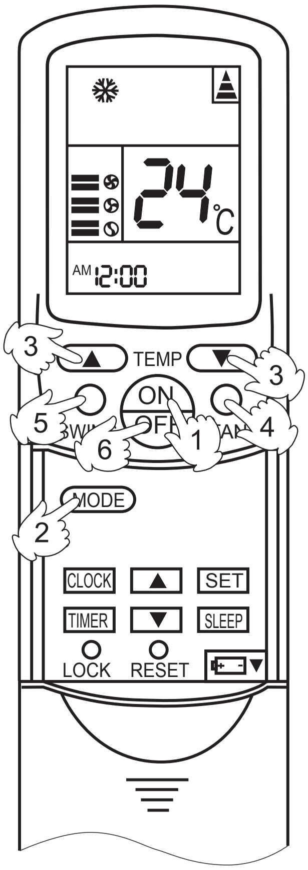
Press MODE button. For each press, operation mode changes as follows:




Unit will run in operation mode displayed on LCD.
Stop display at your desired mode.

### (3) Select temp.setting

Press TEMP button
▲ Every time the button is pressed, temp. setting increases 1℃
▼ Every time the button is pressed, temp. setting decreases 1℃
Unit will start running to reach the temp. setting on LCD.




**Hints**

Remote controller can memorize each operation status. When starting it next time, just press ON/OFF button and unit will run in previous status.

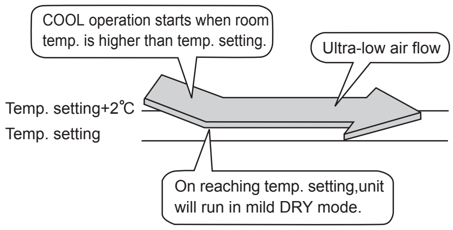
# GUIDE TO OPERATION

## (4) Fan speed selection

Press FAN button. For each press, fan speed changes as follows:




Unit runs at the speed displayed on LCD.
In HEAT mode, warm air will blow out after a short period of time due to cold-draft prevention function.
In DRY mode, when room temp. becomes 2℃ higher than temp. setting, unit will run intermittently at LO speed regardless of FAN setting.




## (5) Air flow direction adjust

After operation mode is selected, vertical flap will open automatically according to the mode.

## (6) Unit stop

Press ON/OFF button.
Only time remains on LCD.
All indicators on indoor unit go out.
Vertical flap closes automatically.

**Hints**

As cold air flows downward in COOL mode, adjusting air flow horizontally will be much more helpful for a better air circulation.
As warm air flows upward in HEAT mode, adjusting air flow downward will be much more helpful for a better air circulation.
Be careful not to catch a cold when cold air blows downward.
It is harmful to your health in summer to go frequently in and out of places where temp.difference is above 7℃ . Temp. difference of 3-5℃ will remove your fatigue.
More than this, unit's load can be reduced and power consumption cut down as well. So, you'd better set a temp. diff of 3-5℃ between indoor and outdoor temp. in COOL mode.

# GUIDE TO OPERATION

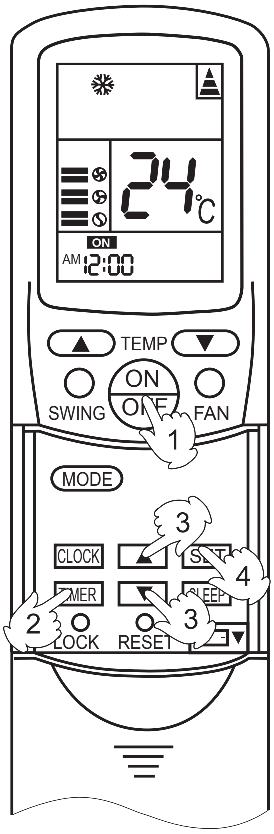
## TIMER operation

### Set Clock correctly before starting Timer operation(refer to page 6)

You can let unit start or stop automatically at following times: Before you wake up in the morning, or get back from outside or after you fall asleep at night.

## TIMER ON/OFF

(1)After unit start, select your desired operation mode.
Operation mode will be displayed on LCD.
Power indicator on indoor unit lights up.




### (2)TIMER mode selection

Press TIMER button to change TIMER mode.
Every time the button is pressed, display changes as follows:

→ ON → OFF → ON ⏲ OFF → blank

TIMER ON   TIMER OFF   TIMER ON-OFF

Select your desired TIMER mode (TIMER ON or TIMER OFF) ON or OFF will flash.

### (3)Timer setting

Press HOUR▲/▼ button.
▲Every time the button is pressed, time increases 10min. If button is kept depressed, time will change quickly.
▼Every time the button is pressed, time decreases 10min. If button is kept depressed, time will change quickly. Time will be shown on LCD. It can be adjusted within 24hours.

### (4)Confirming your setting

After setting correct time, press SET button to confirm "ON" or "OFF" stops flashing
Time displayed: Unit starts or stops at x hour x min (TIMER ON or TIMER OFF).
Timer mode indicator on indoor unit lights up.

## To cancel TIMER mode

Just press TIMER button several times until TIMER mode disappears.

### Hints

After replacing batteries or a power failure happens, Time setting should be reset. Remote controller possesses memory function, when use TIMER mode next time, just press SET button after mode selecting if timer setting is the same as previous one.

# GUIDE TO OPERATION

## TIMER ON-OFF

### (1)After unit start, select your desired operation mode

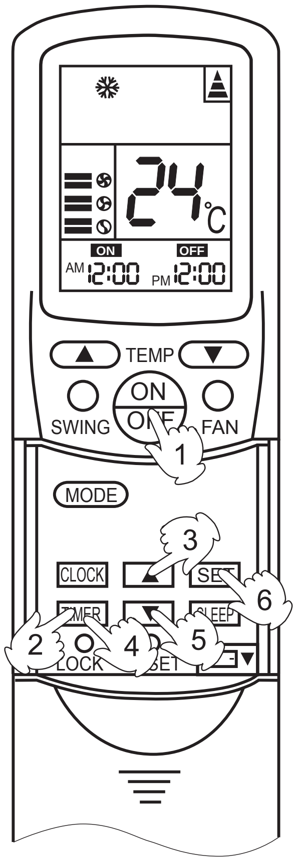
Operation mode will be displayed on LCD.
Power indicator on indoor unit lights up.

### (2)Press TIMER button to change TIMER mode

Every time the button is pressed, display changes as follows:

→ ON (TIMER ON) → OFF (TIMER OFF) → ON ⏲ OFF (TIMER ON-OFF) → blank

Select TIMER ON-OFF, "ON" will flash.




### (3)Time setting for TIMER ON

Press HOUR button.

▲ Every time the button is pressed, time increases 10min.
If button is kept depressed, time will change quickly.
▼ Every time the button is pressed, time decreases 10min.
If button is kept depressed, time will change quickly. Time will be shown on LCD.
It can be adjusted within 24hours.
AM refers to morning and PM to afternoon.

### (4)Time confirming for TIMER ON

After time setting, press TIMER button to confirm.
"ON" stops blinking, While "OFF" starts blinking.
Time displayed: Unit starts at X hour X min.

### (5)Time confirming for TIMER OFF

Follow the same procedures in "Time setting for TIMER ON".

### (6)Time setting for TIMER OFF

After time setting, press SET button to confirm "OFF" stops flashing.
Time displayed: Unit stops at X hour X min.

## To cancel TIMER mode

- Just press TIMER button several times until TIMER mode disappears.
- According to the Time setting sequence of TIMER ON or TIMER OFF, either Start-Stop or Stop-Start can be achieved.

# AIR FLOW DIRECTION ADJUSTMENT PROCEDURE

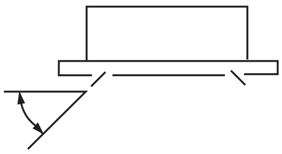
## Adjusting up/down air flow direction

■ Up/down direction can be adjusted by using the SWING button on the remote controller.
Each time pressing this button, the mode changes in the following sequence.

→ SWING → No indication (louver stopped) →

Change to the AIRFLOW mode.

**SWING**



Louver moves in upward and downward directions continuously.

**LOUVER STOPPED**

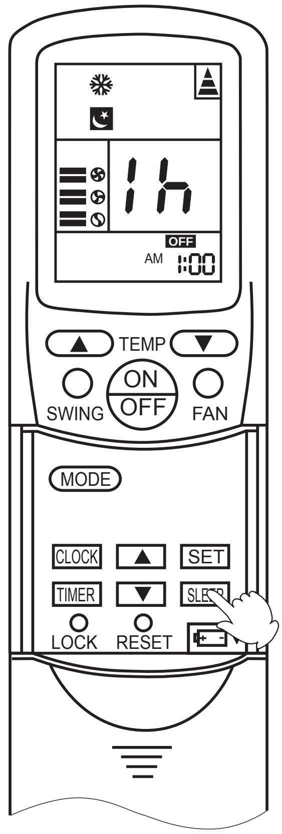
When the LOUVER button is pushed during SWING mode, it stops swinging at the just angle.

### ⚠ CAUTION

- Avoid direct air flow to the body for many hours.
- Avoid downward blowing operation of cooling mode for many hours.
- Do not touch the swing louver during swing operation.

## Comfortable Sleep

At night, before going to bed you can press down the SLEEP button on the controller and the air-conditioner will run by the comfortable sleeping mode to make you sleep more comfortable.




Press SLEEP button once to make the air conditioner have the previous-set sleep time (first power-on is "1h"), the sleep symbol will appear. Press time button▲/▼, you can choose the time in 1~8 hours. Each press of▲/▼, the time increases/reduces 1 hour and "xh" appears in the humidity setting part, "OFF" appears in "TIMER OFF" display part and timer-off time; press SLEEP button again to cancel sleep function, the sleep symbol diappears.

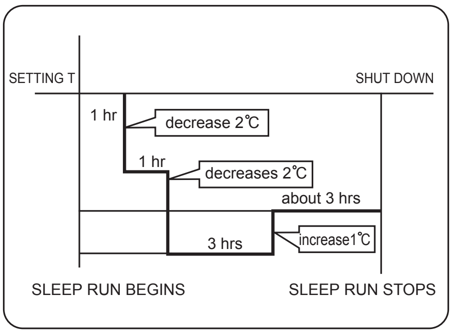
## In cooling, dehumidifying mode

One hour after sleeping operation start, the temp. is 1℃ higher than the setting one. After another hour the temp. rises 1℃ and then run continuously for another 6hrs' and then close. The actual temp. is higher than the setting one which is to prevent from being too cool to your sleep.

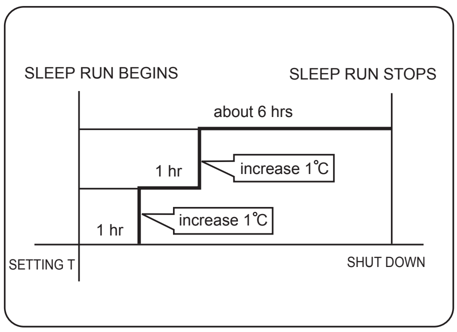
## In heating mode

One hour after start up, the temp. decrease 2℃ lower than the setting one. After another hour decrease by more 2℃.
The temperature will automatically rise by 1℃ after another 3hrs' operation, and then automatically close after 3hrs' continuous operation. The actral temperature is lower than the setting one which is to prevent from being too hot to your sleep.

Note:
- In AUTO mode, unit will run in SLEEP function according to the operation mode.
- After setting SLEEP function, it is forbidden to calibrate clock.
- If the set sleep-time does not reach 8 hours, the unit will stop operation automatically after set time is complete.
- Set "TIMER-OFF" function first, then set SLEEP, and press the sleep-set-performance; set TIMER-ON function first, the sleep function can only be set before TIMER-ON; if set the SLEEP function first, the TIMER function can not be set.
- After setting SLEEP, press CLOCK button to show the time; press TEMP. button to show the temperature; press again to change temperature.
- When the set SLEEP time is 8 hours, connect it as shown in the following figure.




Heat mode




Cooling mode

**Remote Control:**

There is a telecommunication interface for remote control on the control panel of the indoor unit. After the peripheral equipment have been installed in accordance with the instruction manual of the selected remote control detector, the air conditioner will be computerized and controlled from a far-away place.

**Power Failure Resume (to be applied for a necessary situation):**

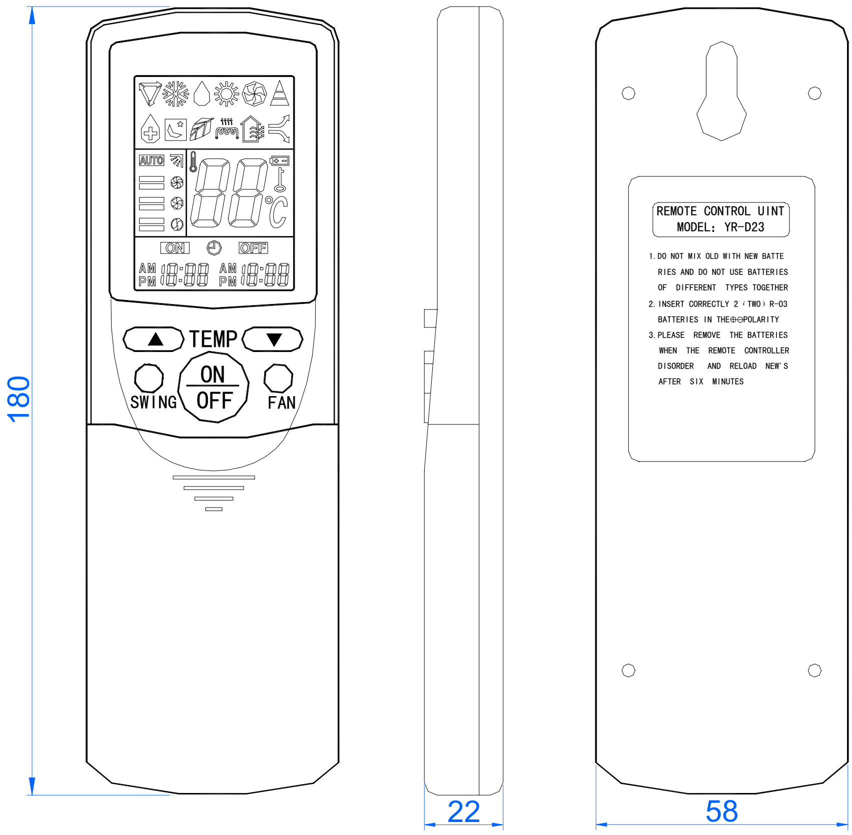
After the power failure compensation is set, if power failure suddenly occurs while the air conditioner is working, it will resume the previous working state when the power is supplied again.

**Setting Method:** When the remote controller is on (excluding timer mode and fan mode), press the "Sleeping" button on the remote controller 10 times within 5 seconds, and after the buzzer rings 4 times, the air conditioner will enter the state of power failure compensation.

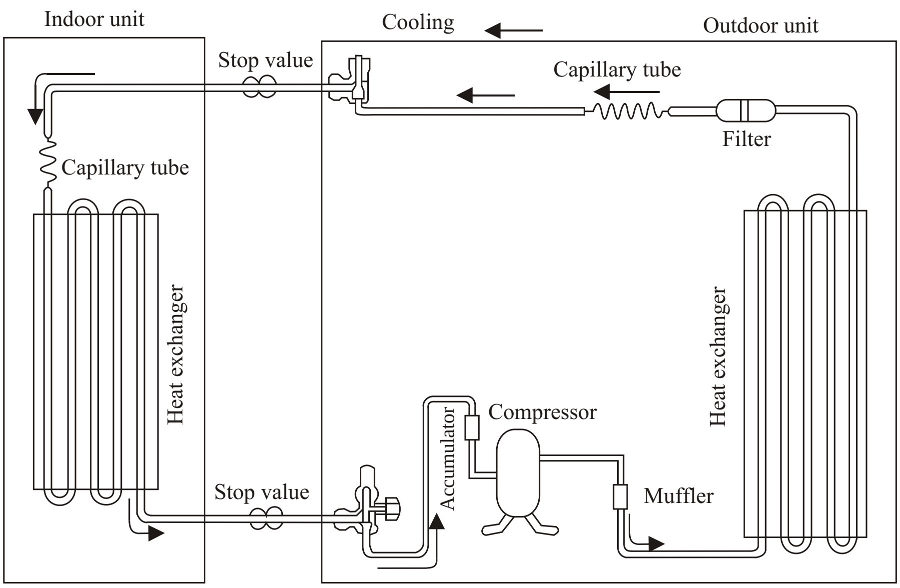
**Cancel Method:** Press the "Sleeping" button on the remote controller 10 times within 5 seconds, and after the buzzer rings 2 timer, the power failure compensation mode will be cancelled.

**Notes:** When a power failure suddenly occurs during the air conditioner is working after the power after the power failure compensation is set, if the air conditioner will not be used for a long time, please cut off the power supply to prevent its operation from being resumed after the power is supplied again, or press the "Switch On/Off" button after the power comes again.

## 7.2 Dimensions of the controller




# 8 REFRIGERANT DIAGRAM



# 9 ELECTRICAL CONTROL FUNCTIONS

## 9.1 Control Features

The brief introduction includes those for each item of various types of air conditioners and their electric control functions.

7.1 Brief introduction of electric control

(1) Automatic run

**a. Cooling-heating type**

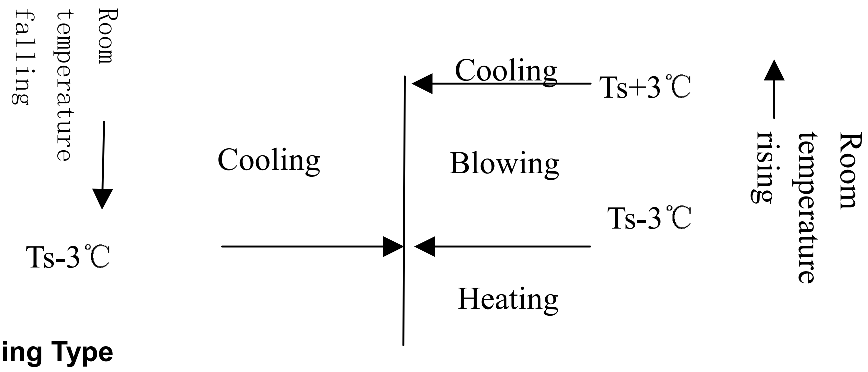
After the machine being started and running mode changes to AUTO, the system will decide running mode according to difference between the present room temperature and setting temperature, then runs as the decided mode. In the following selections, Tr means room temperature and Ts means setting temperature.

Select running mode according to the following conditions at the first time to enter Auto mode:

Tr≥Ts-3℃ to select cooling mode (with setting temperature being Ts +3)

Tr<Ts-3℃ to select heating mode (with setting temperature being Ts)

After the system entering auto run mode, the running mode can convert automatically according to variation of room temperature between cooling, blowing and heating in the way shown as the chart below:



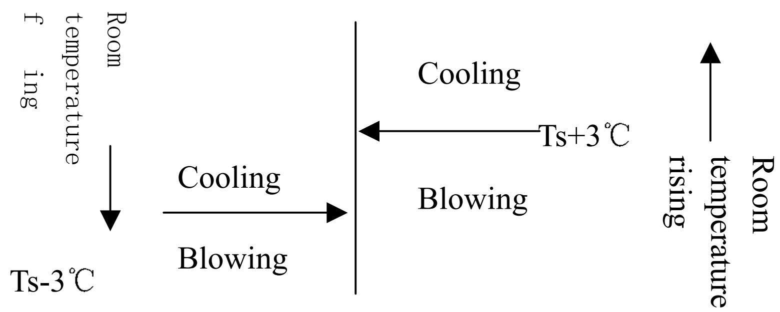

**b. Single Cooling Type**

Select running mode according to the following conditions at the first time to enter Auto mode:

Tr≥Ts + 3℃ to select cooling mode

Tr < Ts + 3℃ to select blowing mode

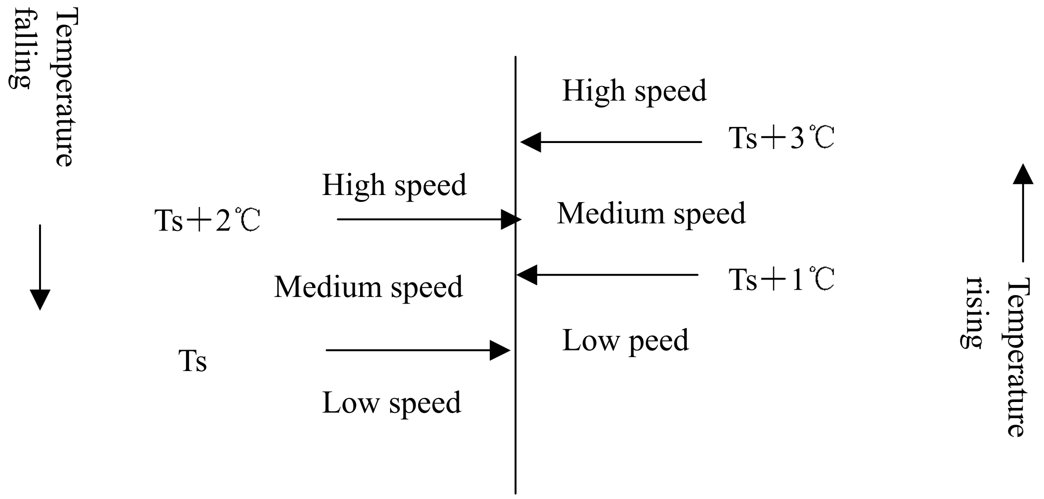
After the system entering auto run, the running mode can convert automatically according to variation of room temperature between cooling and blowing functions in the way shown as the chart below:



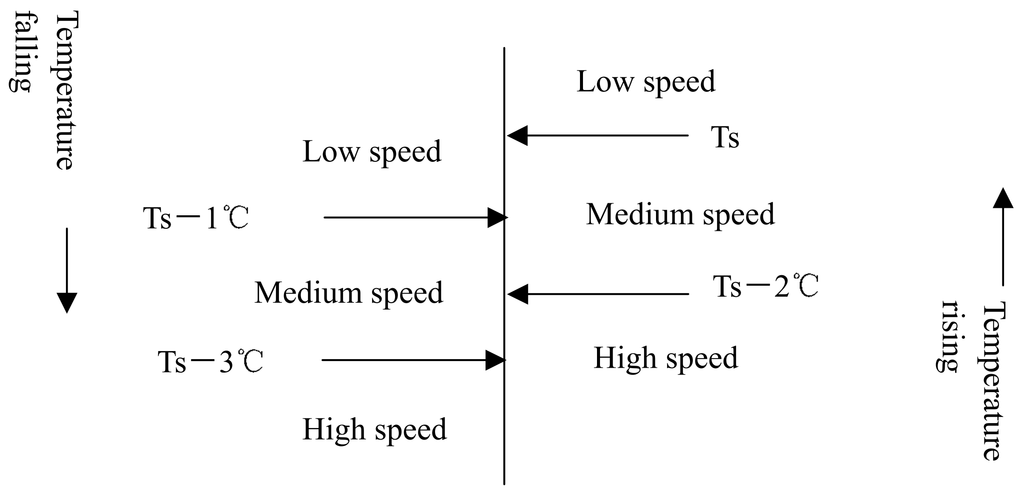
(2) Auto Selection of Wind Speed

In the following, Tr means room temperature while Ts means setting temperature.

**a. During cooling program**，conversion of wind speed from the low to high won't work until the present speed has continued for 3 minutes while conversion from the high to low needs no time delay. The chart below is the sketch map of conversion:




**b. During heating program**（applicable for cooling-heating type）, conversion of wind speed from the low to high won't work until the present speed has continued for 3 minutes while conversion from the high to low needs no time delay. The hart below is the sketch map of conversion:




(3) Dehumidifying program

In the following, Tr means room temperature while Ts means setting temperature.

a. After the system entering dehumidifying program, the compressor, outdoor and indoor blowing fans run according to the following rules:

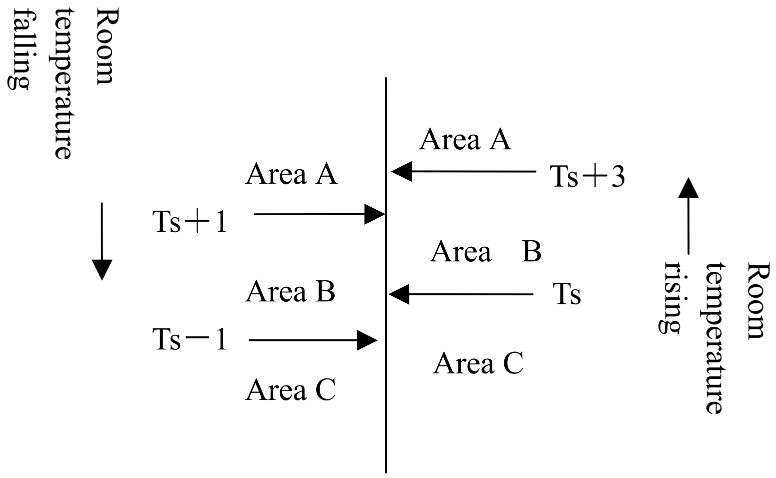
(1) Tr > Ts + 2℃, the compressor and outdoor blowing fan run continuously while indoor

blowing fan runs at setting wind speed. This working area is defined as area A.

(2) Ts ≤Tr≤Ts + 2℃, the compressor and outdoor blowing fan run for 10 minutes then pause for 6 minutes, while indoor blowing fan runs at low wind speed. This working area is defined as area B.

(3) Tr < Ts, the compressor and outdoor blowing fan stop working while outdoor blowing fan runs at low wind speed. This working area is defined as area C.

a. After dehumidifying program starting, the system converts between A, B and C areas according to variations of room temperature with running mode being shown as the chart below:




(4) Cutoff protection against overload and overheat

During heating program, if the indoor blowing fan has been started and the compressor has been running more than 2 minutes, and the **temperature of indoor coil pipe (Ticp)** > 64℃, the outdoor blowing fan will stops running; If Ticp ≤ 50℃ and the outdoor blowing fan has kept stop state for 45 seconds, then it will restore rotation; If Ticp > 67℃ and such temperature has last for 10 seconds, the compressor will stop running and indoor blowing fan run according to conditions as it reaches setting temperature. When Ticp < 58℃, and the compressor has kept stop state over 3 minutes, then the compressor and outdoor blowing fan will restore normal running.

**Cutoff protection for heating current**

After 60 seconds from the compressor being started, if CT current exceeds I1 (9.2A) and such case has kept 5 seconds, the outdoor blowing fan will stop. If 45 seconds has passed after the outdoor blowing stops and the current of the compressor is less than I2 (7.5A), the blowing fan will restore running. If CT current exceeds I3 (14.3A) and such case lasts for 3 seconds, the compressor and outdoor blowing fan will stop. The compressor will not restore running until 3 minutes passes with CT current less than 12A.

(5) Cool wind prevention during heating program

At the first time entering heating program or after ending the latest frost removal, if the **temperature of indoor coil pipe (Ticp)** < 28℃, the indoor blowing fan will stop running; If 28℃≤Ticp < 38℃, the indoor blowing fan will run at low speed; If Ticp > 38℃ or the compressor has been running for more than 4 minutes, the indoor blowing fan will run at

setting wind speed.

(6) Afterheat blowing during heating program

During heating program, the compressor will stop running (except overheat protection or frost removal) while the indoor blowing fan will firstly run for 50 seconds at low speed then stop.

(7) Frost removal control (applicable for cooling-heating type)

(1) Starting conditions for frost removal:

A. The indoor unit is in overload protection and outdoor blowing fan stops. The outdoor blowing fan does not enter overheat mode in 10 minutes after it is restarted, the compressor has run over 45 minutes totally while 20 minutes continuously, and the temperature of indoor coil pipe is lower than 43℃;

B. After the compressor continuously running for 20 minutes, the temperature of indoor coil pipe falls 1℃ every 6 minutes and such case continuously appears three times, and the temperature of indoor coil pipe is less than 40℃, and 5 minutes have passed after the compressor is restarted;

C. The compressor has run totally over 3 hours while 20 minutes continuously, and the temperature of indoor coil pipe is less than 40℃;

D. The difference between room temperature and the one of indoor coil pipe is less than 16℃ and the compressor has totally run over 45 minutes while 20 minutes continuously;

Frost removal will start if any one of the above conditions is satisfied.

(2) Ending conditions for frost removal:

1) Time of frost removal has exceeded 9 minutes;

2) CT current exceeds I4(8.2A);

(3) Actions of each load after the frost removal starts:

The compressor and outdoor blowing fan stop, and indoor blowing fan also stops. 55 seconds later the reversal valve is closed and next 5 seconds later the compressor is started.

(4) Actions of each load after the frost removal ends:

The compressor stops running while outdoor blowing fan immediately runs at high speed, 55 seconds later the reversal valve is opened and next 5 seconds later the compressor restores running and indoor blowing fan runs as conditions for cool wind prevention.

(8) Freeze protection

After the compressor has run for 9 minutes, the system will check **temperature of indoor coil pipe (Ticp)**. If Ticp is less than -1℃, the compressor and outdoor blowing fan will stop. They will run again after the compressor stops if both the following conditions are satisfied:

1) 3 minutes have passed since compressor stops.
2) Ticp exceeds 7℃.

(9) 3 minutes protection for compressor

After compressor stops, it cannot be started until 3 minutes later. During the machine’s running, if time after loosing power not exceeds 3 minutes, the compressor cannot be

restarted until 3 minutes later after it is reenergized.

（10）Power breakdown memory

If the machine suddenly loses power while running, or stops for maintenance or trouble shooting, it will restart running as the status when it stops after the power is restored.

Note: 1. Function setting: Continuously press sleep button on the remote controller 10 times in 5 seconds and buzzer on control panel shall beep 4 times.

2. Memory content: Running mode, wind speed setting, temperature setting, swing status.

3. Cancel: Press sleep button on the remote controller 10 times and buzzer on control panel beeps 2 times.

(11) Control of water pump

a. In cooling (including automatic cooling mode) and dehumidifying modes, the water pump works if the compressor runs while stops 5 minutes later after the compressor stops.

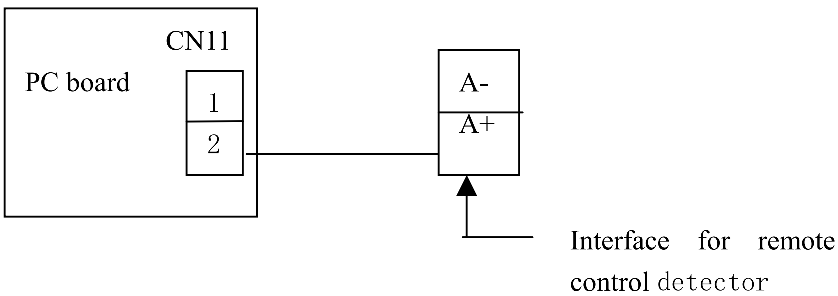
b. When water tank is fully filled, the float switch will be off. The water pump will start to work after a controller has detected this signal and it will continue working for 5 minutes after the float restores to normal state.

c. If the full water signal is detected continuously over 5 minutes, the water pump indicator lamp will flash to alarm and compressor stops running. The water pump will run 5 minutes, then pause for 5 seconds before next 5 minutes' running, ... until the float restores to normal state, after which the pump will run for 5 minutes then stop.

(12) Monitoring of remote network

Through preset interface, the air conditioner is connected to remote control detector (made by Haier) with 2-core cables for wire communication, to execute instructions sent from computer or centralized controller via remote control detector and meanwhile send present running status and trouble information of the machine to remote control detector.

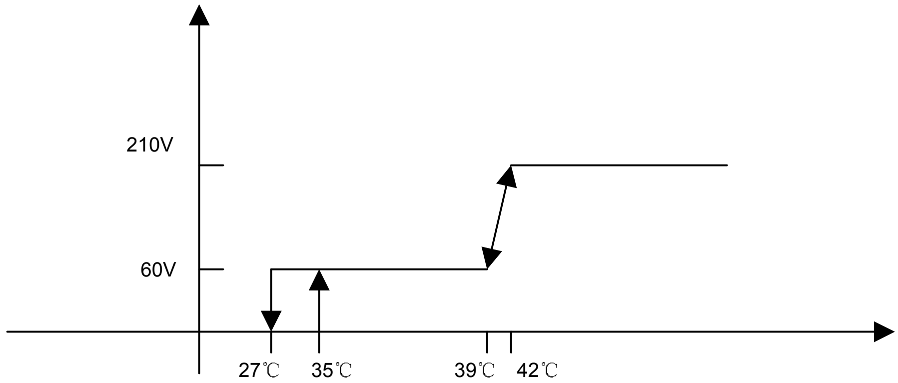
Connection between air conditioner and remote control detector:




(13) Trial run

Under shut-down state, hold pressing mandatory button. The buzzer will beep once, then twice after 5 seconds. Release the button to enter mandatory cooling mode, under which the indoor blowing fan runs at high speed with both the compressor and outdoor blowing fan working. Press the mandatory button again can end the mandatory mode.

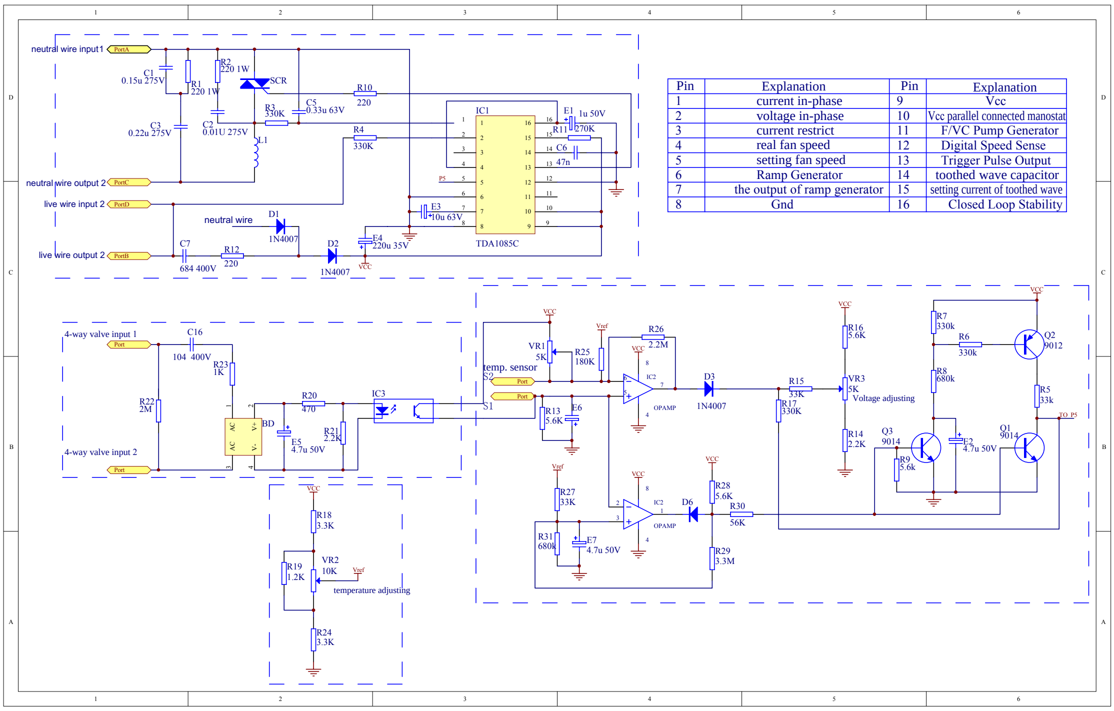
## 9.2 Introduction to the fan speed controller




The low ambient temperature cooling system realizes starting normally at the temperature -15℃ by the method of: The sensor collects the coil temperature to change the voltage of the outdoor fan motor, thus to change the fan speed. As a result, the system pressure is restricted.

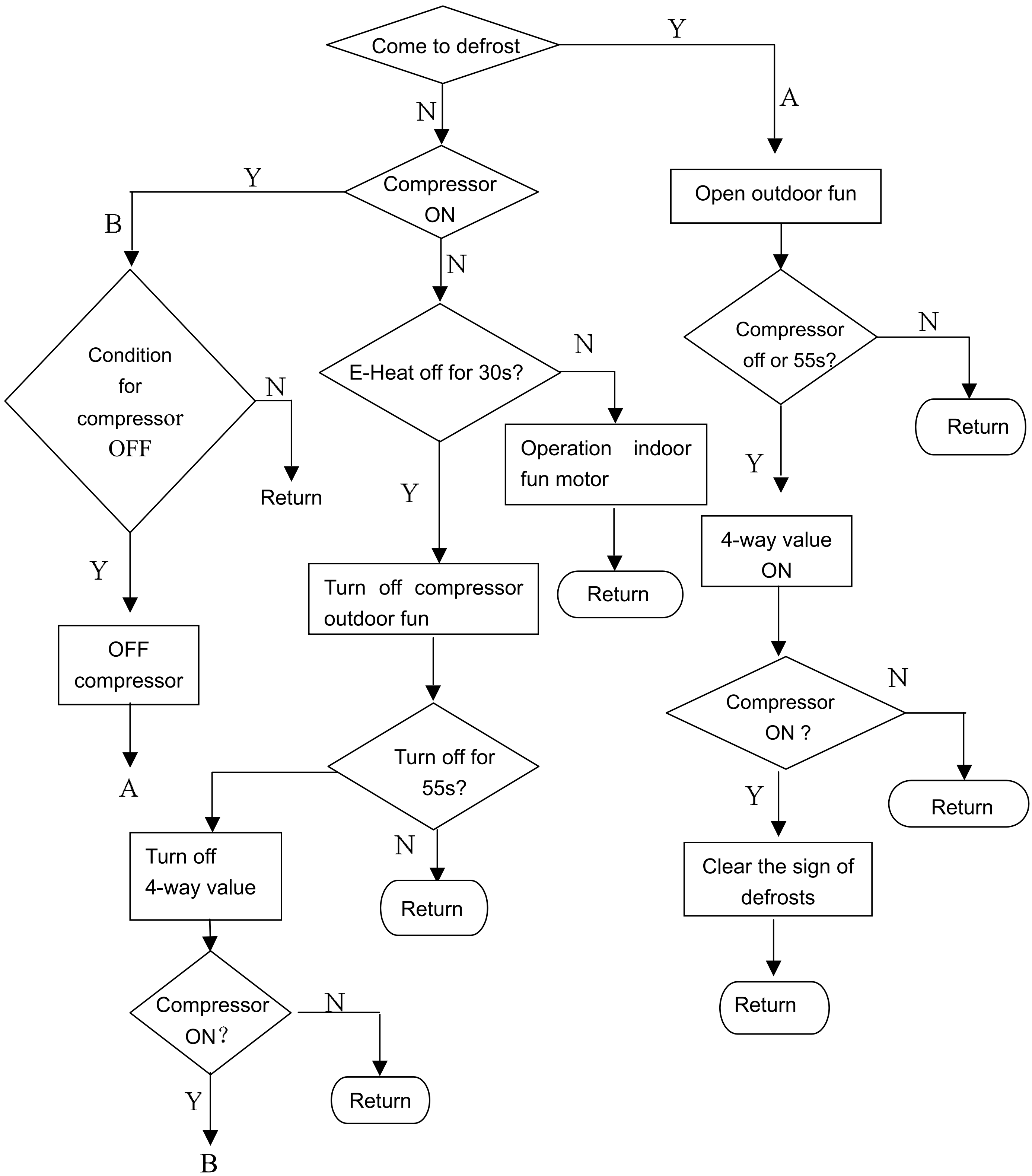
1.When the coil temperature exceeds 42℃,the voltage would be the highest value 210V and the fan motor runs in the normal way. As the outdoor temperature descends, the condensator temperature descends too, and the pressure of the compressor discharge lowers. The voltage of the fan motor falls along with the coil temperature. According to the above chart (the coil temperature descends, the fan speed descends too), when the temperature falls to 39℃, the fan motor runs in the lowest voltage 60V, and if the temperature falls continuously to 27℃, the outdoor fan motor stops.

2.When the fan motor stops, the pressure of the compressor discharge rises gradually, and also the condensator temperature. If the temperature rises to 35℃, the outdoor fan motor starts and runs in the lowest voltage 60V. If the condensator temperature can not stop rising, when it is 39℃, the fan speed will rise according to the line in the above chart until the temperature be 42℃, and then the fan motor will run in the normal way.




| Pin | Explanation | Pin | Explanation |
|---|---|---|---|
| 1 | current in-phase | 9 | Vcc |
| 2 | voltage in-phase | 10 | Vcc parallel connected manostat |
| 3 | current restrict | 11 | F/VC Pump Generator |
| 4 | real fan speed | 12 | Digital Speed Sense |
| 5 | setting fan speed | 13 | Trigger Pulse Output |
| 6 | Ramp Generator | 14 | toothed wave capacitor |
| 7 | the output of ramp generator | 15 | setting current of toothed wave |
| 8 | Gnd | 16 | Closed Loop Stability |

## 9.3 Defrost operation flow chart



# 10 DIAGNOSTIC INFORMATION (TROUBLE SHOOTING)

## 10.1 Fault codes

| No. | Code | Flash time of compressor running indicate lamp | Trouble contents (new) |
|---|---|---|---|
| 1 | E0 | 10 | drainage system trouble |
| 2 | E1 | 1 | indoor temperature sensor broken |
| 3 | E2 | 2 | indoor coil temperature sensor broken |
| 4 | E3 | 3 | outdoor temperature sensor broken |
| 5 | E4 | 4 | outdoor coil temperature sensor broken |
| 6 | E5 | 5 | over current protect limit |
| 7 | E6 | 6 | pressure protect |
| 8 | E7 | 7 | three phase protect |
| 9 | E8 | 8 | Communication trouble between wired remote controller and indoor unit |
| 10 | E9 | 9 | communication trouble between indoor and outdoor unit |

Indicate lamp of remote control receiver board:

Green----power lamp

Yellow----timer lamp

Red----running of compressor

Red----water pump

The faults are shown by lamp flashing or display on the remote controller

## 10.2 Trouble shooting - Detailed for engineer

| Trouble | Checkup result | Possible reasons | Corresponding solution |
|---|---|---|---|
| No response after power being connected | Unavailable voltage at input part of circuit board | The power supply coil isn't plugged well | Plug the supply coil properly |
| | Unavailable voltage at one end of the fuse | Damaged wave filtering component | Return to the controller manufacturer for repair |
| | | Damaged fuse | Replace with a good one |
| | Unavailable output from the consequent pole of transformer | The transformer isn't plugged well or is damaged | Plug the transformer well or replace with a good one |
| | Improper output of 7805 | Damaged component on power supply unit of indoor board | Return to the controller manufacturer for repair |
| | Normal power supply for major chip | Damaged major chip | Return to the controller manufacturer for repair |
| Display board does not make normal response | Indicator lamps do not light | Damaged connection cable between display board and indoor board | Replace with a good connection cable |
| | | Connection cable between display board and indoor board isn't connected well | Connect the cable well |
| | Remote control cannot be received | Damaged reception adaptor | Replace with a good one |
| | | Damaged remote circuit or major chip | Return to the controller manufacturer for repair |
| The buzzer does not beep while making remote control | Unavailable square wave signal at two ends of the buzzer | Damaged dynatron Q1 | Replace with a good one |
| | | Damaged major chip | Return to the controller manufacturer for repair |
| | Available square signal at two ends of the buzzer | Damaged buzzer | Replace with a good one |
| Indoor blowing fan does not run | No output from 2803 on indoor board | Damaged 2803 | Replace with a good 2803 |
| | Normal output of relays K1, JK2, JK3 | CN8 on indoor board is not plugged well with connection cable | Connect connection parts well |
| Indoor blowing fan cannot not generate low wind | No output at 16 pin of 2803 on indoor board | Damaged 2803 | Replace with a good 2803 |
| | Unavailable voltage on COM port of relay JK2 on indoor board | Damaged relay JK2 | Replace with a good one |
| | No output at relay JK1 on indoor board | Damaged relay JK1 | Replace with a good one |

| Trouble | Checkup result | Possible reasons | Corresponding solution |
|---|---|---|---|
| Indoor blowing fan cannot generate medium wind | No output at 15 pin of 2803 | Damaged 2803 | Replace with a good 2803 |
| | No voltage at COM of relay JK3 on indoor board | Damaged relay JK3 | Replace with a good JK3e |
| | No output at relay JK2 on indoor board | Damaged relay JK2 | Replace with a good JK2 |
| Indoor blowing fan cannot generate high wind | No output at 14 pin of 2803 | Damaged 2803 | Replace with a good 2803 |
| | No output at relay JK3 on indoor board | Damaged relay JK3 | Replace with a good JK3 |
| No output of swing | No output at 11 pin of 2803 | Damaged 2803 | Replace with a good 2803 |
| | No output at relay JK6 of indoor board | Damaged relay JK6 | Replace with a good JK6 |
| Unavailable power breakdown memory | | No setting has been made | Press sleep button 10 times within 5 seconds (and the buzzer will beep 4 times), the system is then set to power breakdown memory mode. |
| Unavailable power breakdown memory | | Damaged chip IC6 of indoor board | Return to the controller manufacturer for repair |
| No output of four-way valve during heating program | No output at 18 pin of 2803 | Damaged 2803 | Replace with a good 2803 |
| | No output of relay JK7 on indoor board | Damaged relay JK7 | Replace with a good JK7 |
| | Available output of relay JK7 on indoor board | Socket CN6 is not plugged well with connection cable | Plug CN6 and the connection cable well |
| No swing wind under swing mode | No output at 12 pin of 2803 | Damaged 2803 | Replace with a good 2803 |
| | No output of relay JK5 on indoor board | Damaged relay JK5 on indoor board | Replace with a good JK5 |
| | Available output of relay JK5 on indoor board | Socket CN4 is not plugged well with connection cable | Plug CN4 well with the connection cable |

| Trouble | Checkup result | Possible reasons | Corresponding solution |
|---|---|---|---|
| During cooling program, the compressor does not start when the temperature meets proper conditions | | Three minutes' protection for compressor | The compressor will work normal after three minutes |
| | | Too low temperature of indoor coil pipe causes overcooling protection | It will restore automatically when the temperature of indoor coil pipe rises to 7℃ |
| | No output at 11 pin of 2803 on indoor board | Damaged 2803 | Replace with a good 2803 |
| | No output of relay JK6 on indoor board | Damaged relay JK6 on indoor board | Replace with a good JK6 |
| | No output of relay JK6 on indoor board | Connection cable between the compressor and JK6 isn't plugged well | Plug the connection cable well |
| During heating program, the compressor does not start when the temperature meet proper conditions | | 3 minutes' delay protection for compressor | It will restore normally after 3 |
| | | Too high temperature of indoor coil pipe causes overheat protection | It will automatically restore when the temperature of indoor coil pipe falls to 57℃ |
| | No output at 11 pin of 2803 of indoor board | Damaged 2803 | Replace with a good 2803 |
| During heating program, the compressor does not start when the temperature meet proper conditions | No output of relay JK6 on indoor board | Damaged relay JK6 on indoor board | Replace with a good JK6 |
| | Available output of relay JK6 on indoor board | Connection cable between compressor and JK6 isn't plugged well | Plug the connection cable well |
| During cooling program, the compressor works while outdoor blowing fan does not | No output at collector of Q2 on indoor board | Damaged Q2 | Replace with a good Q2 |
| | No output of relay JK8 on indoor board | Damaged relay JK8 on indoor board | Replace with a good JK8 |
| | Available output of relays on indoor board | Socket CN6 is not plugged well with connection cable | Plug the connection cable well |

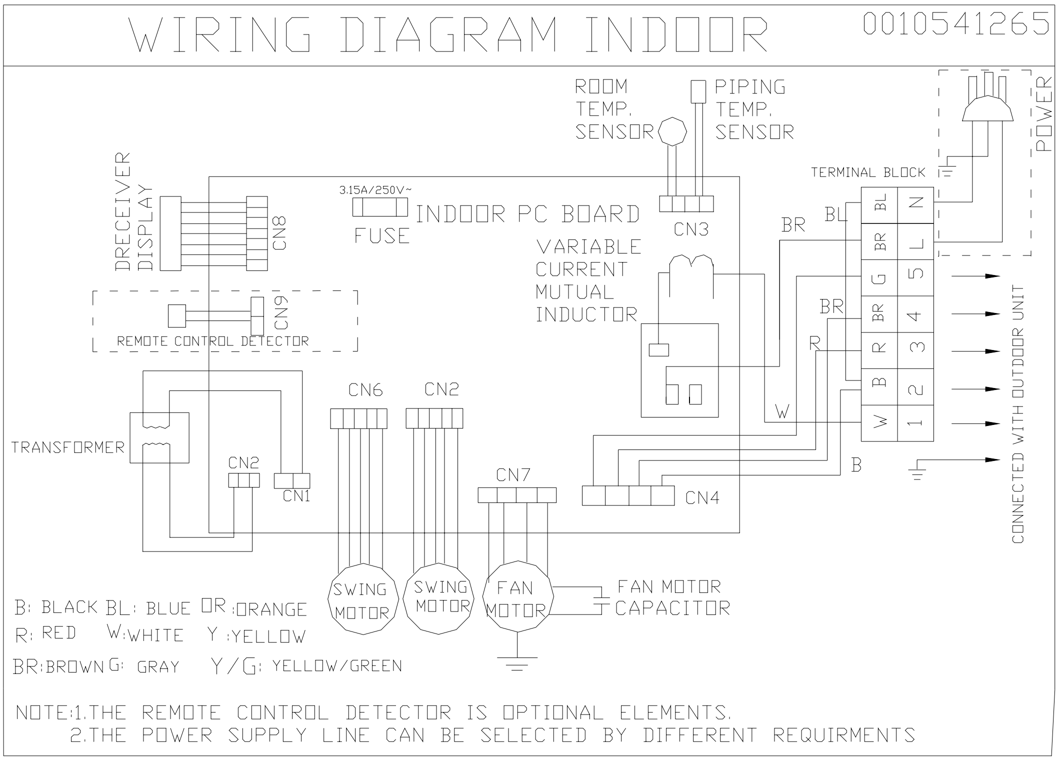
| Trouble | Checkup result | Possible reasons | Corresponding solution |
|---|---|---|---|
| During heating program, the compressor work while outdoor blowing fan does not | | Too high temperature of indoor coil pipe causes overheat protection | It will automatically restore when the temperature of indoor coil pipe falls to 57℃ |
| During heating program, the compressor work while outdoor blowing fan does not | No output at collector of Q2 on indoor board | Damaged Q2 | Replace with a good Q2 |
| | No output of relay JK8 on indoor board | Damaged relay JK8 on indoor board | Replace with a good JK8 |
| | Available output of relays on indoor board | Socket CN6 is not plugged well with connection cable | Plug the connection cable well |
| Abnormal overcurrent detection | Current transformer outputs normally | Damaged rectification diode D6-D7 etc. | Return to the controller manufacturer for repair |
| | Transformer CT1outputs abnormally | Damaged transformer CT1 | Replace with a good one |
| | Inaccurate protection current | Adjust the adjustable potentiometer | |
| | | Damaged major chip | Return to the controller manufacturer for repair |
| With timing indicator and compressor indicator extinguishing, the operation indicator flashes every second | | Damaged indoor temperature sensor | Replace with a good one |
| With timing indicator and compressor indicator lighting, the operation indicator flashes every second | | Damaged temperature sensor for indoor coil pipe | Replace with a good one |
| Water pump indicator flashes every second (trouble for water discharging) | No output at 13 pin of 2803 on indoor board | Damaged 2803 | Replace with a good 2803 |
| | No output of relay JK6 on indoor board | Damaged relay JK4 on indoor board | Replace with a good JK4 |
| | Available output of relay JK6 on indoor board | Socket CN5 is not plugged well with connection cable | Plug the connection cable well |
| | | Faulty connection cable to transmit float feedback signal | Replace with a good one |

# 11 ELECTRICAL DATA

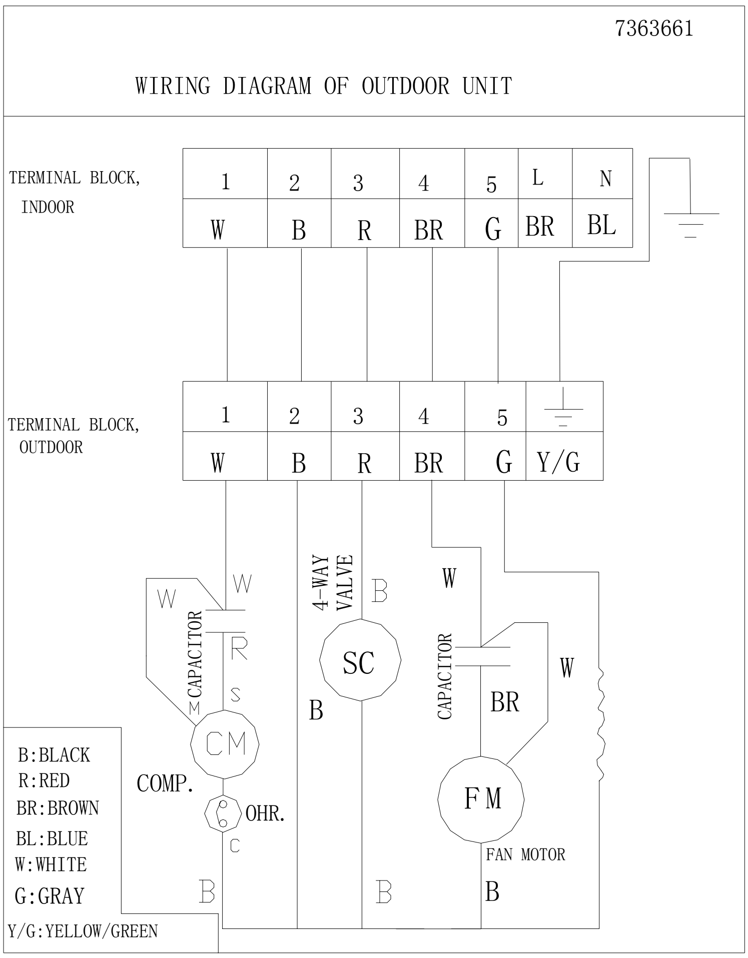
## 11.1 Wiring Diagram

HCFU-14H03;HCFU-18HC03;HCFU-18HC03/R1;HCFU-14H03/R1

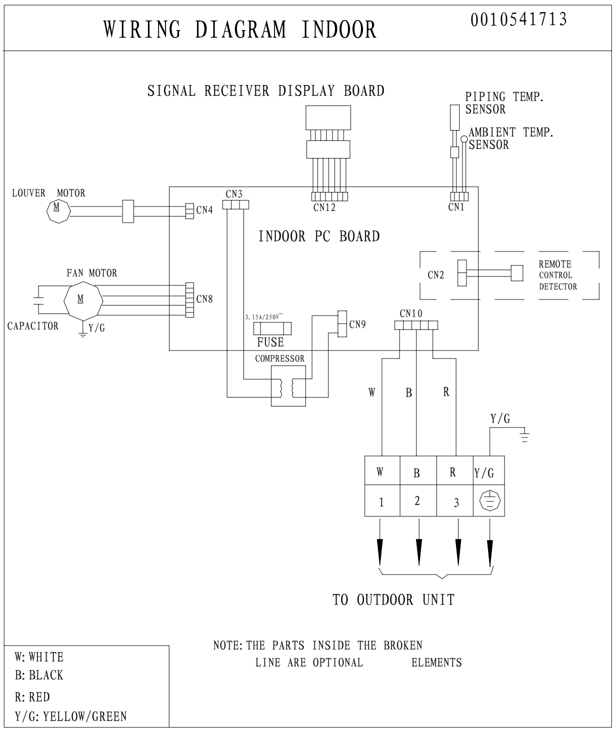
Fig.35

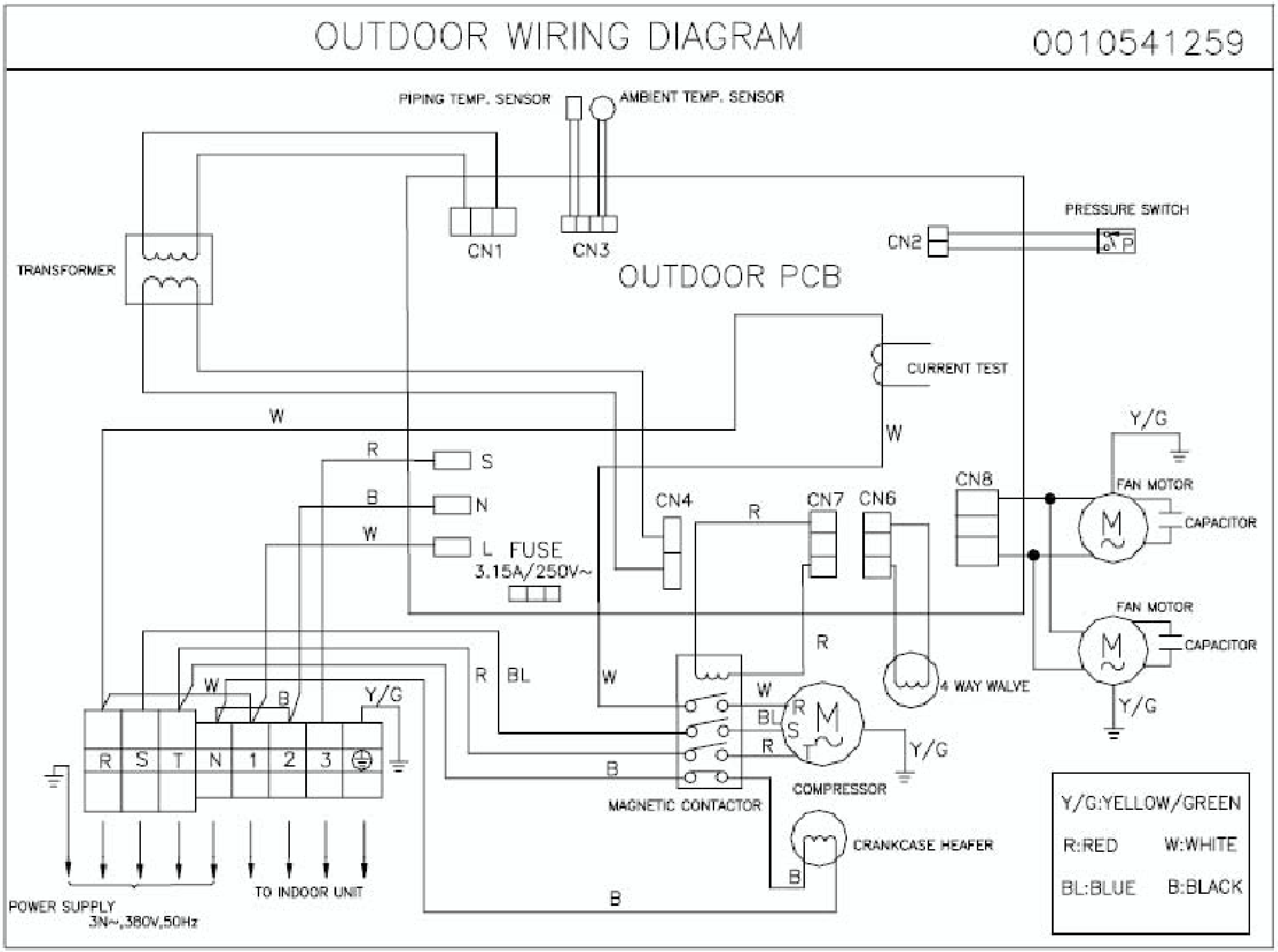



HCFU-14H03;HCFU-18HC03;HCFU-18HC03/R1;HCFU-14H03/R1

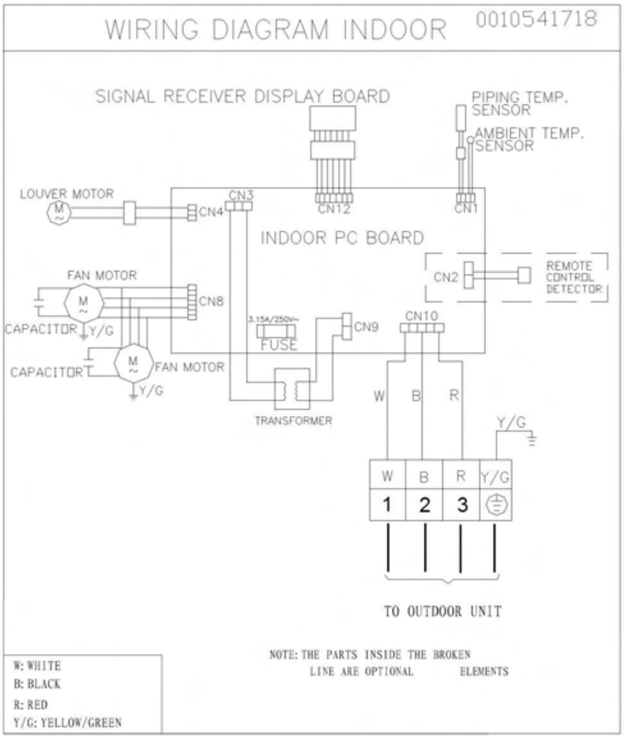


HCFU-24H03 HCFU-28HC03

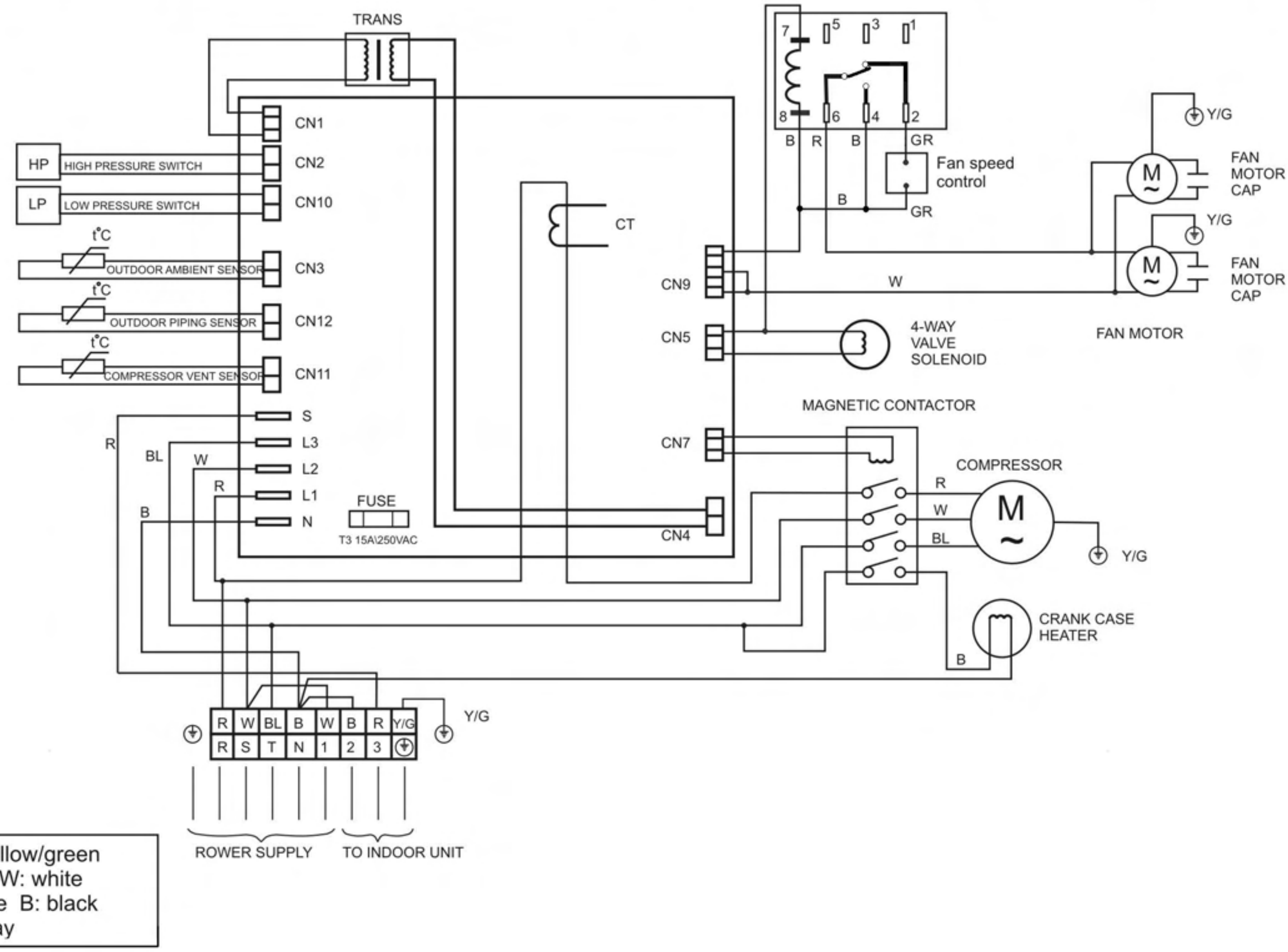


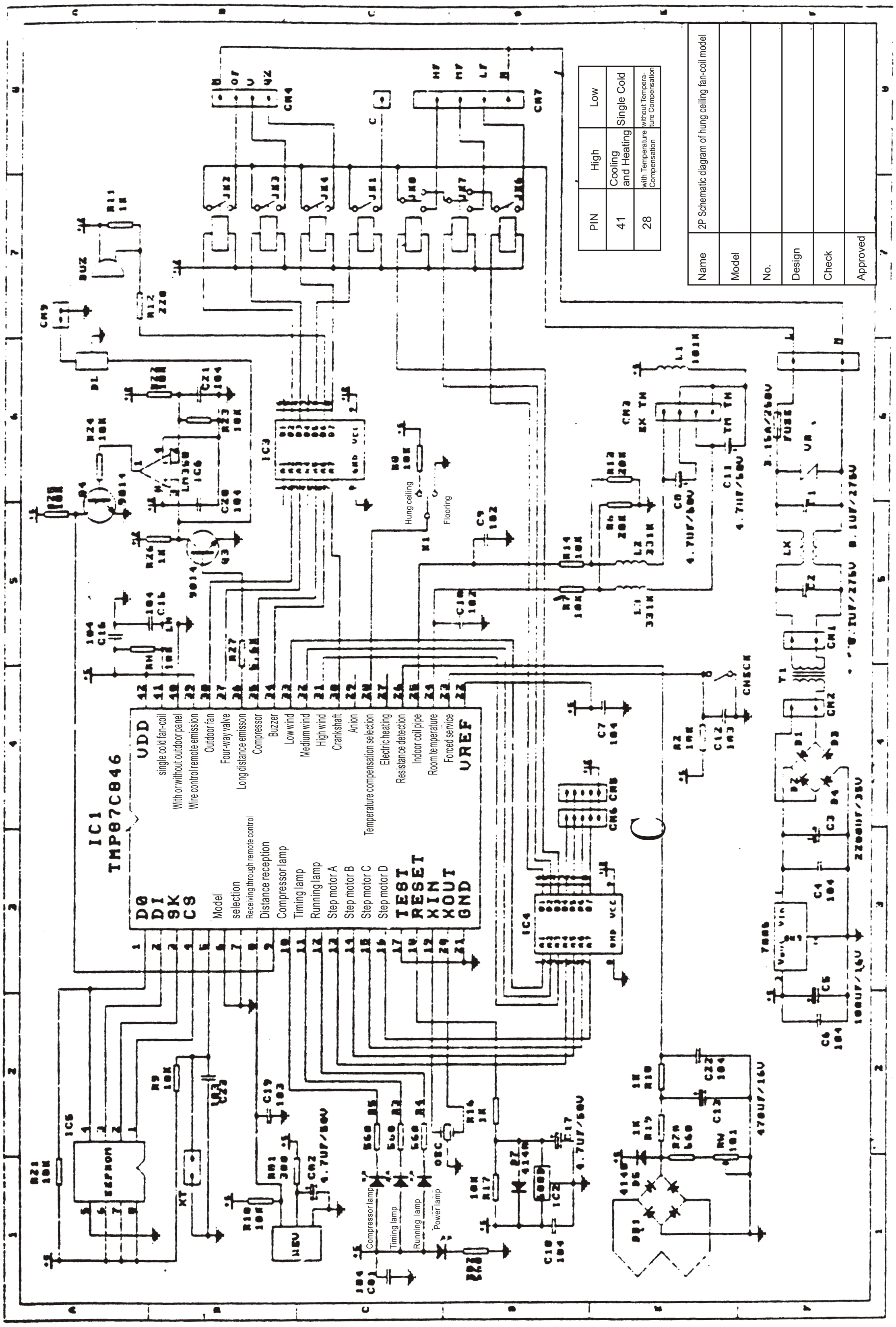
HCFU-36H03 HCFU-42HC03




CIRCUIT DIAGRAM OF OUTDOOR UNIT HCFU-36H03 HCFU-42HC03 0010573510

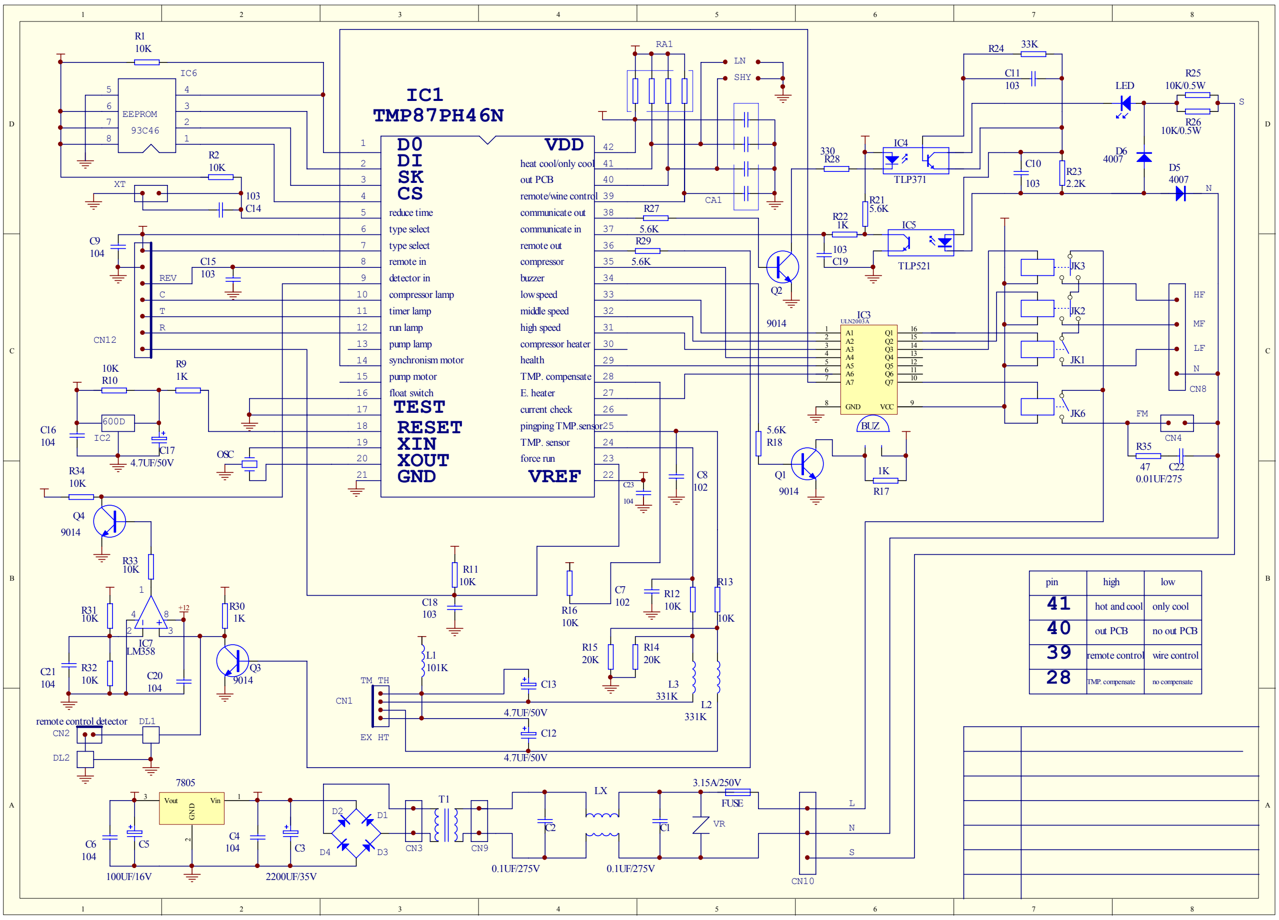


HCFU-14H03 HCFU-18HC03

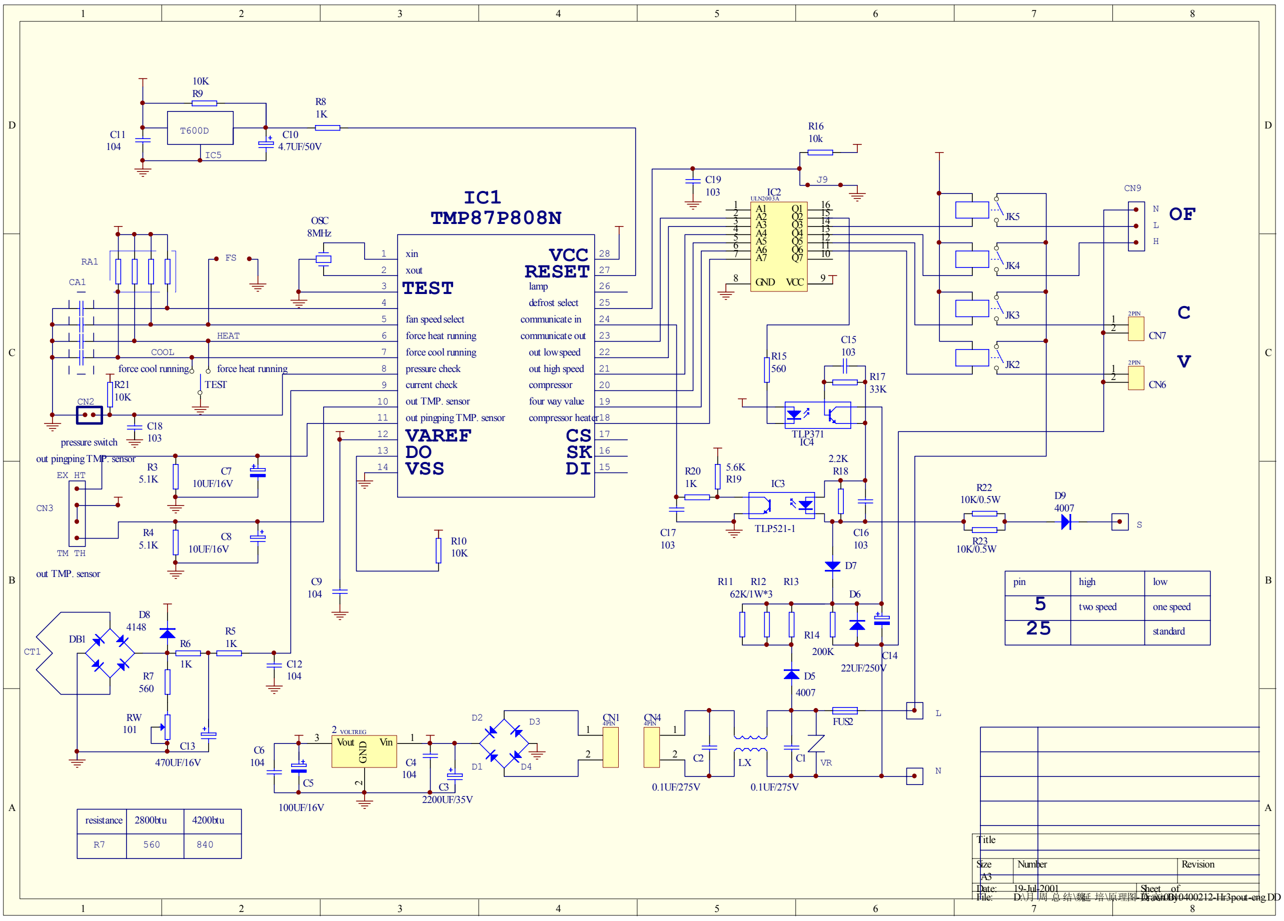


# HCFU-24H03 HCFU28HC03 HCFU36H03 HCFU42HC03

## INDOOR



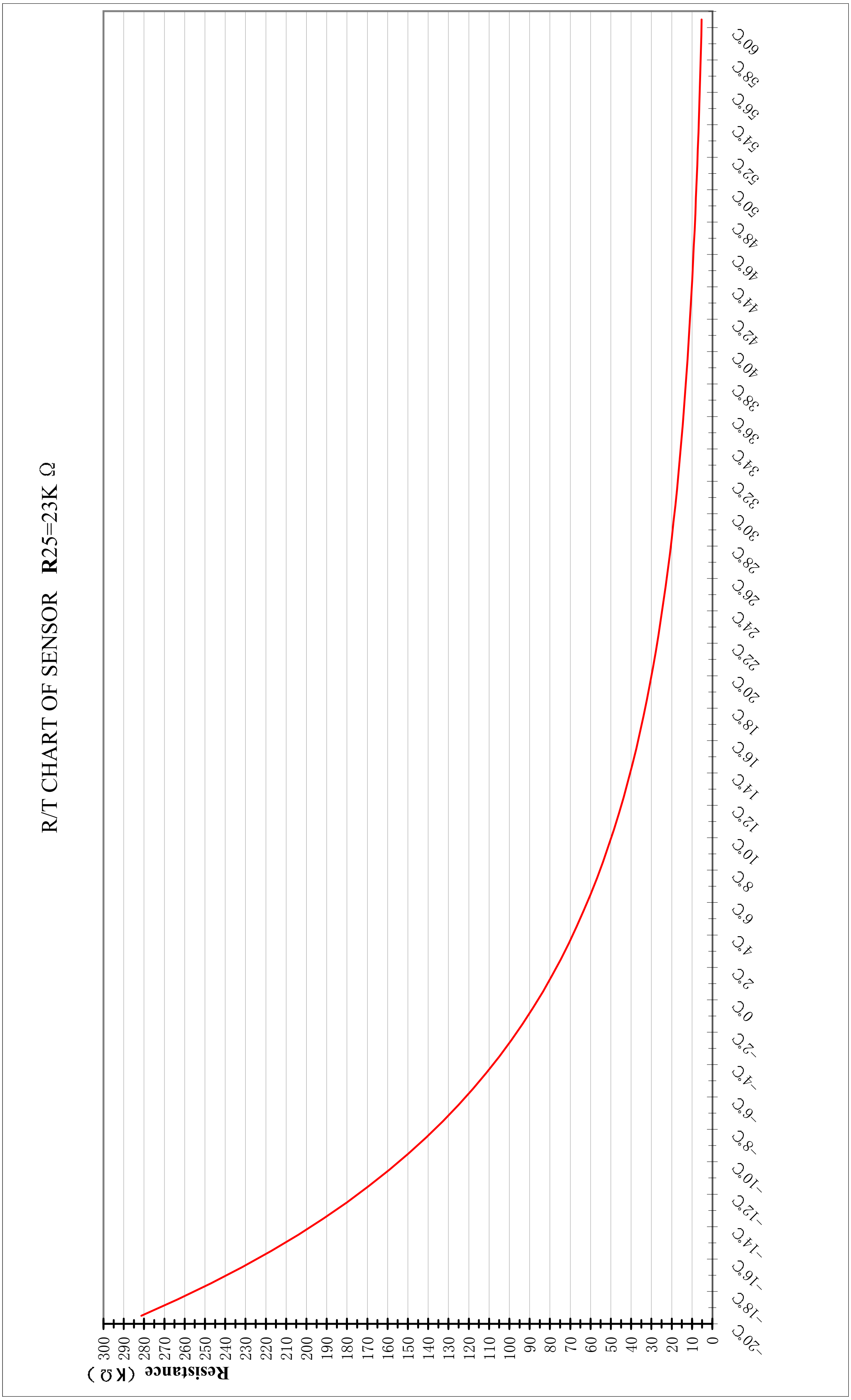

## OUTDOOR

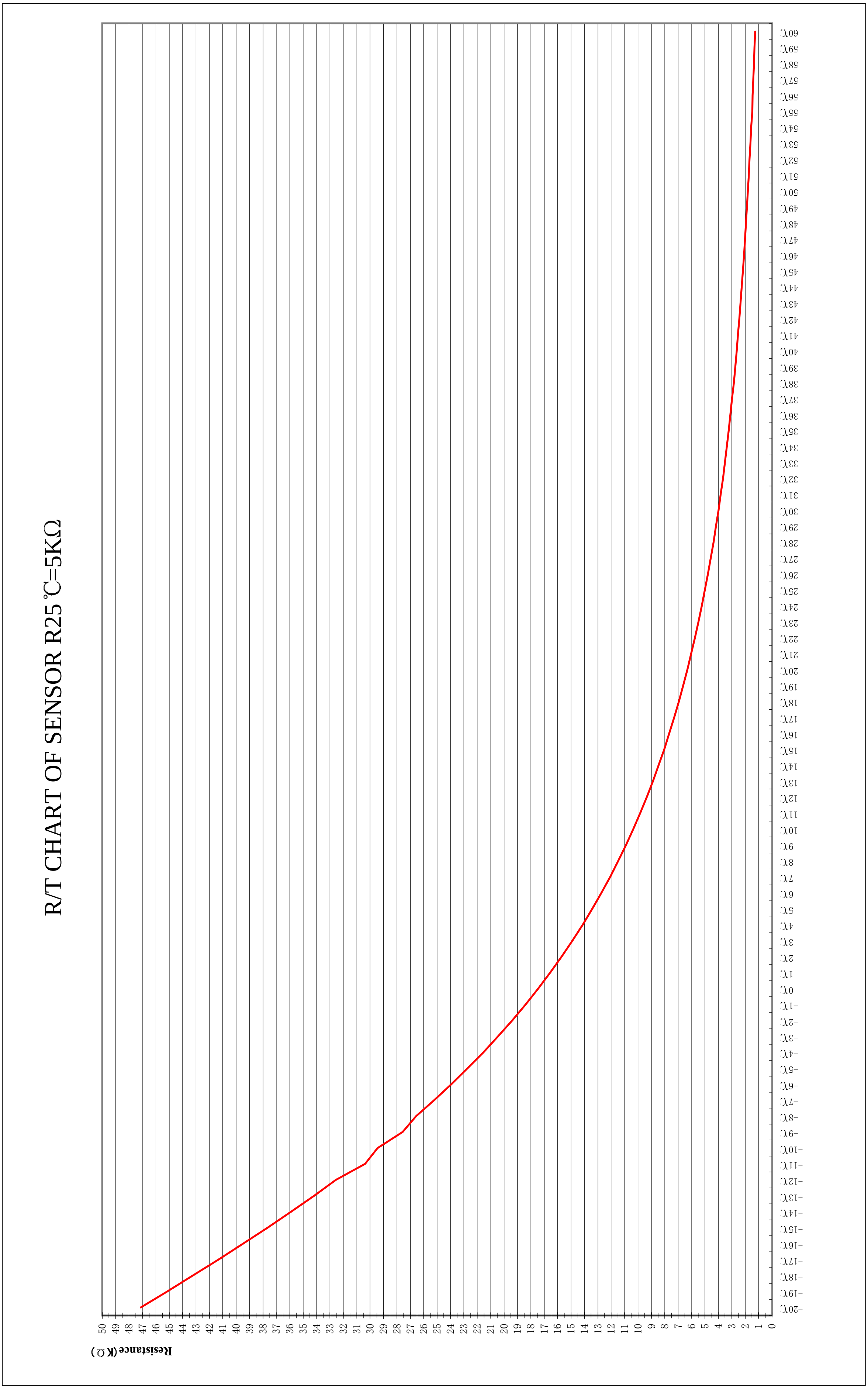


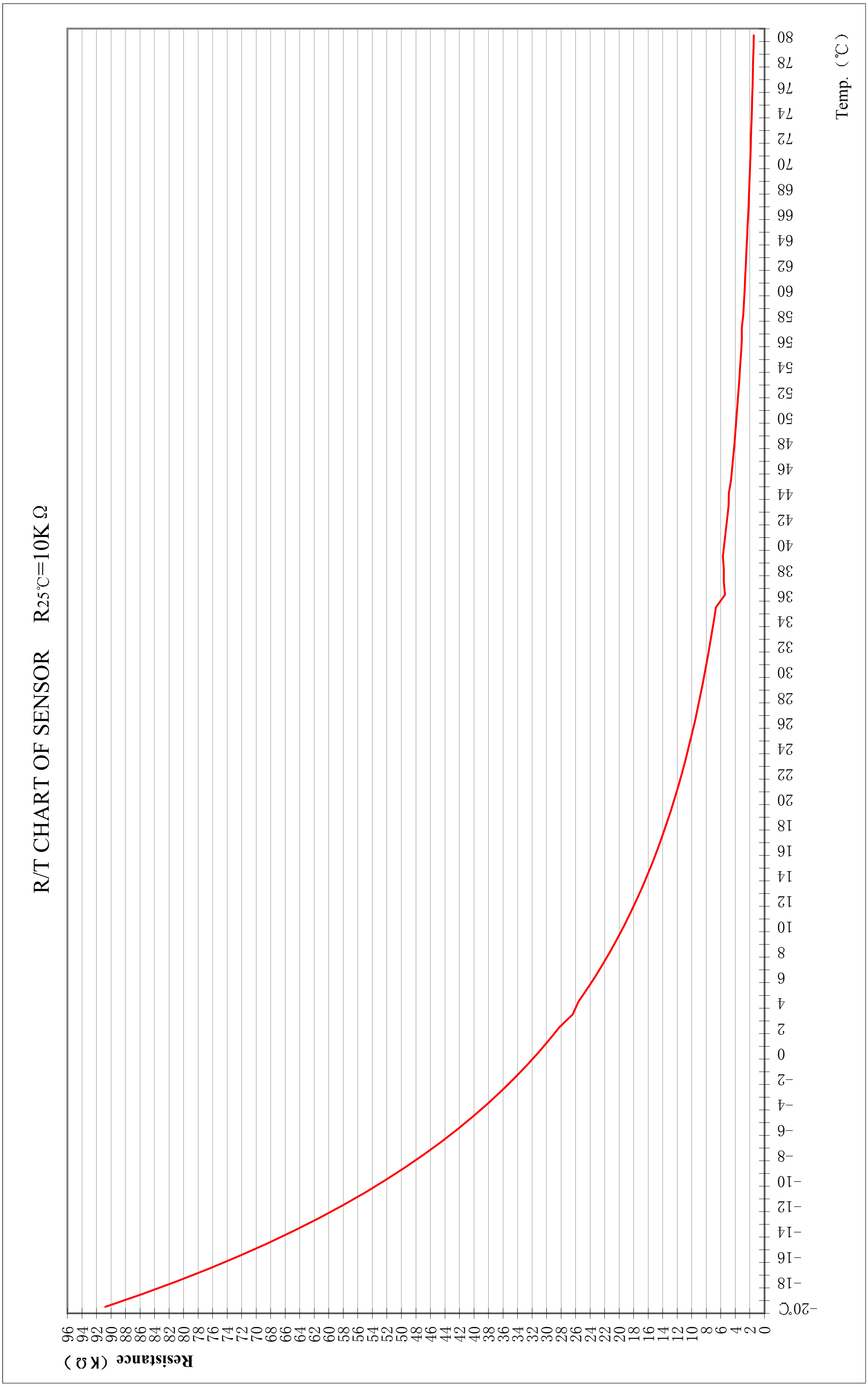
## 11.3 Thermostat chart (Sensor resistance-temperature graph)

Model: HCFU-14H03 HCFU-18HC03 HCFU-24H03 HCFU-28HC03
HCFU-36H03 HCFU-42HC03

| | | | |
|---|---|---|---|
| Indoor | Ambient temperature sensor | Coil temperature sensor | |
| | 23K | 10K | |
| Outdoor | Ambient temperature sensor | Coil temperature sensor | Fan speed controller sensor |
| | 5K | 5K | 5k |

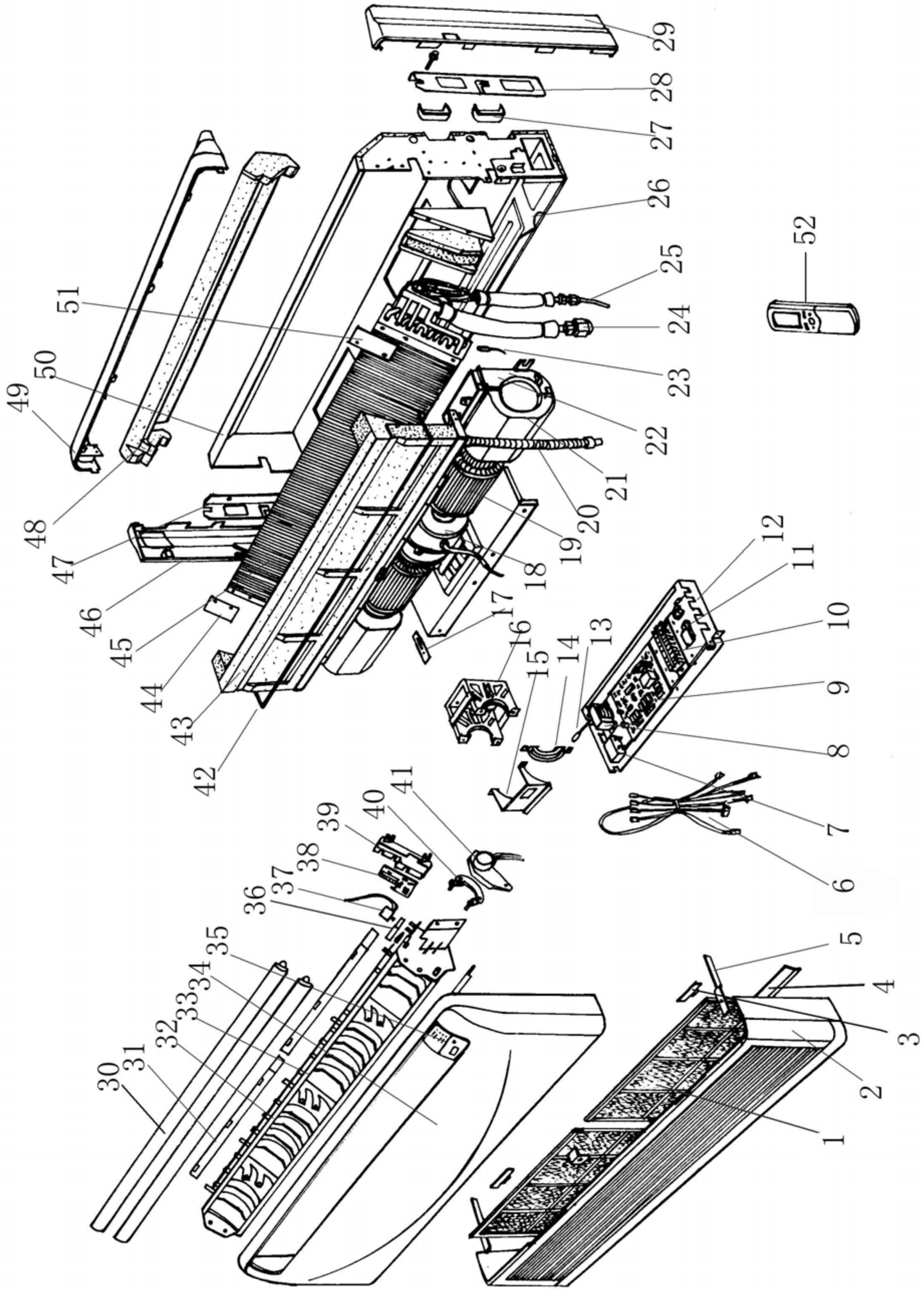

R/T CHART OF SENSOR R25=23K Ω
Resistance (K Ω)
300 290 280 270 260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0
-20℃ -18℃ -16℃ -14℃ -12℃ -10℃ -8℃ -6℃ -4℃ -2℃ 0℃ 2℃ 4℃ 6℃ 8℃ 10℃ 12℃ 14℃ 16℃ 18℃ 20℃ 22℃ 24℃ 26℃ 28℃ 30℃ 32℃ 34℃ 36℃ 38℃ 40℃ 42℃ 44℃ 46℃ 48℃ 50℃ 52℃ 54℃ 56℃ 58℃ 60℃


R/T CHART OF SENSOR R25 ℃=5KΩ
Resistance (KΩ)


R/T CHART OF SENSOR R25℃=10K Ω
Temp.（℃）
Resistance（K Ω）

# 12 EXPLODED VIEWS & PART LISTS

## 12.1 Model HCFU-14H03 HCFU-18HC03 indoor unit

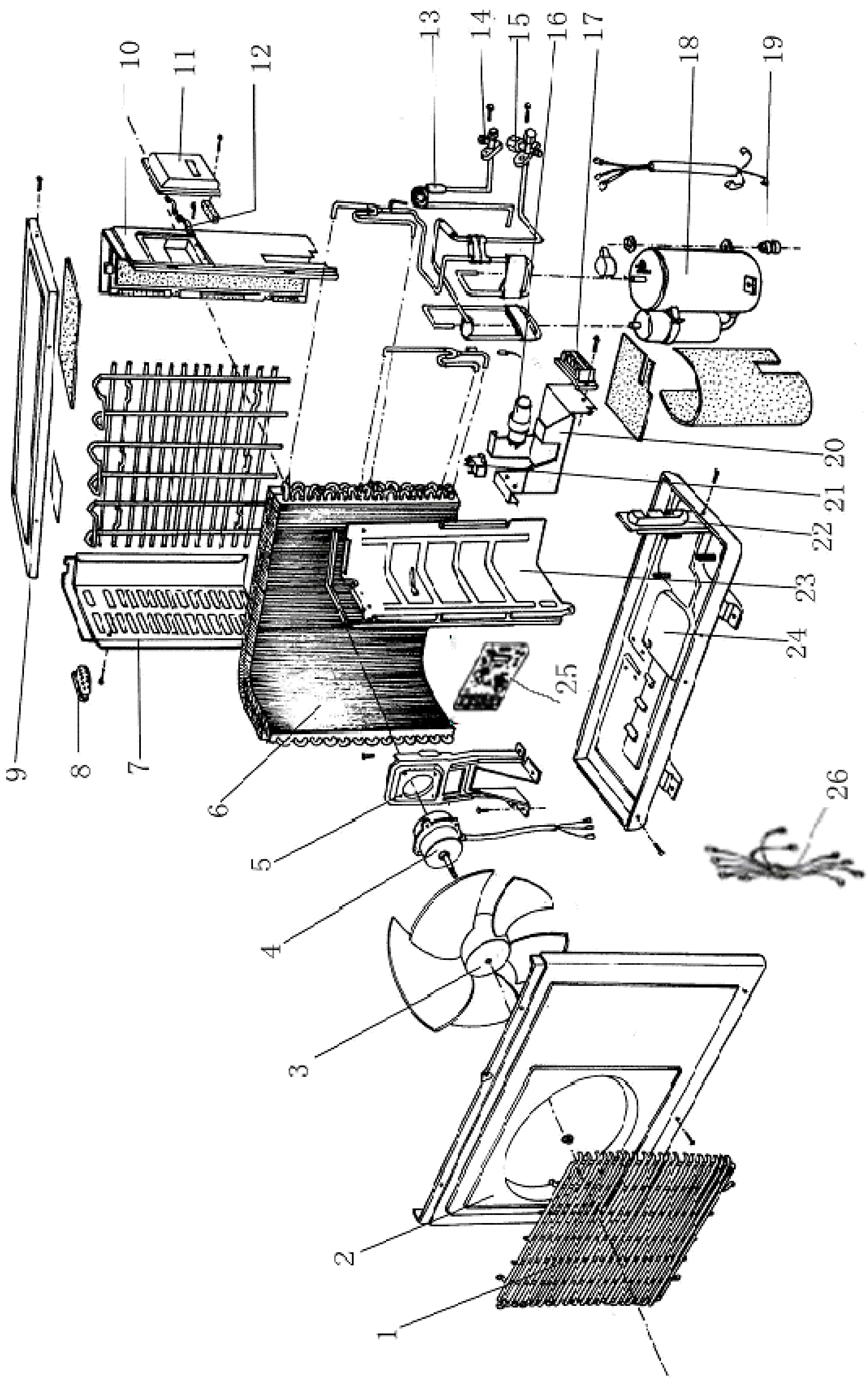


HCFU-14H03 HCFU-18HC03

Part list of indoor unit

| No. | Name of part | specialized number | QTY. | Remark |
|---|---|---|---|---|
| 1 | air filter | 001A2400087 | 2 | |
| 2 | inlet grill assy | 001A0100330 | 1 | |
| 3 | fixing plate | 001A1301398 | 2 | |
| 4 | strengthen tendon | 001A1301395 | 1 | |
| 5 | pinch plate | 001A1301399 | 2 | |
| 6 | wiring assembly | 001A4400509 | 1 | |
| 7 | Fan motor capacitor 2uf | 001A3600009B | 1 | |
| 8 | transformer | 001A3800141 | 1 | |
| 9 | indoor PCB | 0010400020 | 1 | |
| 10 | termonal block | 001A4000084 | 1 | |
| 11 | Power line clip | 001A14311292 | 1 | |
| 12 | wiring block | 001A1431326 | 1 | |
| 13 | environment temp. Sensor indoor | 001A3900005 | 1 | |
| 14 | clamp plate of motor | 001A1301382 | 1 | |
| 15 | connecting rod of motor | 001A1301383 | 1 | |
| 16 | Fan motor bracket | 001A1301381 | 1 | |
| 17 | small block | 001A1443592 | 1 | |
| 18 | Indoor fan motor | 001A3000109 | 1 | |
| 19 | centrifugal fan | 001A2300042 | 2 | |
| 20 | drainage elbow | 001A1436664 | 1 | |
| 21 | scroll case 1 | 001A1431608 | 2 | |
| 22 | scroll case 2 | 001A1431609 | 2 | |
| 23 | Pipe temp. sensor indoor | 001A3900006 | 1 | |
| 24 | Air inlet tube assy. | 001A2111677 | 1 | |
| 25 | liquid pipe | 0010750130 | 1 | |
| 26 | back framework | 001A1734862 | 2 | |
| 27 | handle | 001A1436606 | 4 | |
| 28 | right wallboard | 001A1101104 | 1 | |
| 29 | plate assy right | 001A1101041 | 1 | |
| 30 | long blade 1 | 001A1431593 | 1 | |
| 31 | strengthen tendon | 001A1301394 | 1 | |
| 32 | outlet grill hold middle | 001A1231180 | 1 | |
| 33 | mini fan blade | 001A1431599 | 1 | |
| 34 | cover | 001A0100329 | 1 | |
| 35 | display panel | 001A1431586 | 1 | |
| 36 | Airflow oriented board affix | 001A1431827 | 3 | |
| 37 | curving connecting rod | 001A1431598 | 1 | |
| 38 | receive panel | 001A0600249 | 1 | |
| 39 | Indicator light base | 001A1431587 | 1 | |
| 40 | Motor bracket | 001A1301133 | 2 | |
| 41 | stepping motor | 001A3000107 | 2 | |
| 42 | fixing layering | 001A1301396 | 1 | |
| 43 | Drain pan | 001A1233191 | 1 | |
| 44 | Evaporator left holder | 001A1301400 | 1 | |
| 45 | Evaporator assembly | 001A0400069 | 1 | |
| 46 | plate assy left | 001A1101099 | 1 | |
| 47 | left wallboard | 001A1101103 | 1 | |
| 48 | assistant drain pan | 001A1231192 | 1 | |
| 49 | cover assy | 001A1231182 | 1 | |
| 50 | back framework | 001A1101098 | 1 | |
| 51 | Evaporator right holder | 001A1301401 | 1 | |
| 52 | Remote Controller | 0010400256 | 1 | |

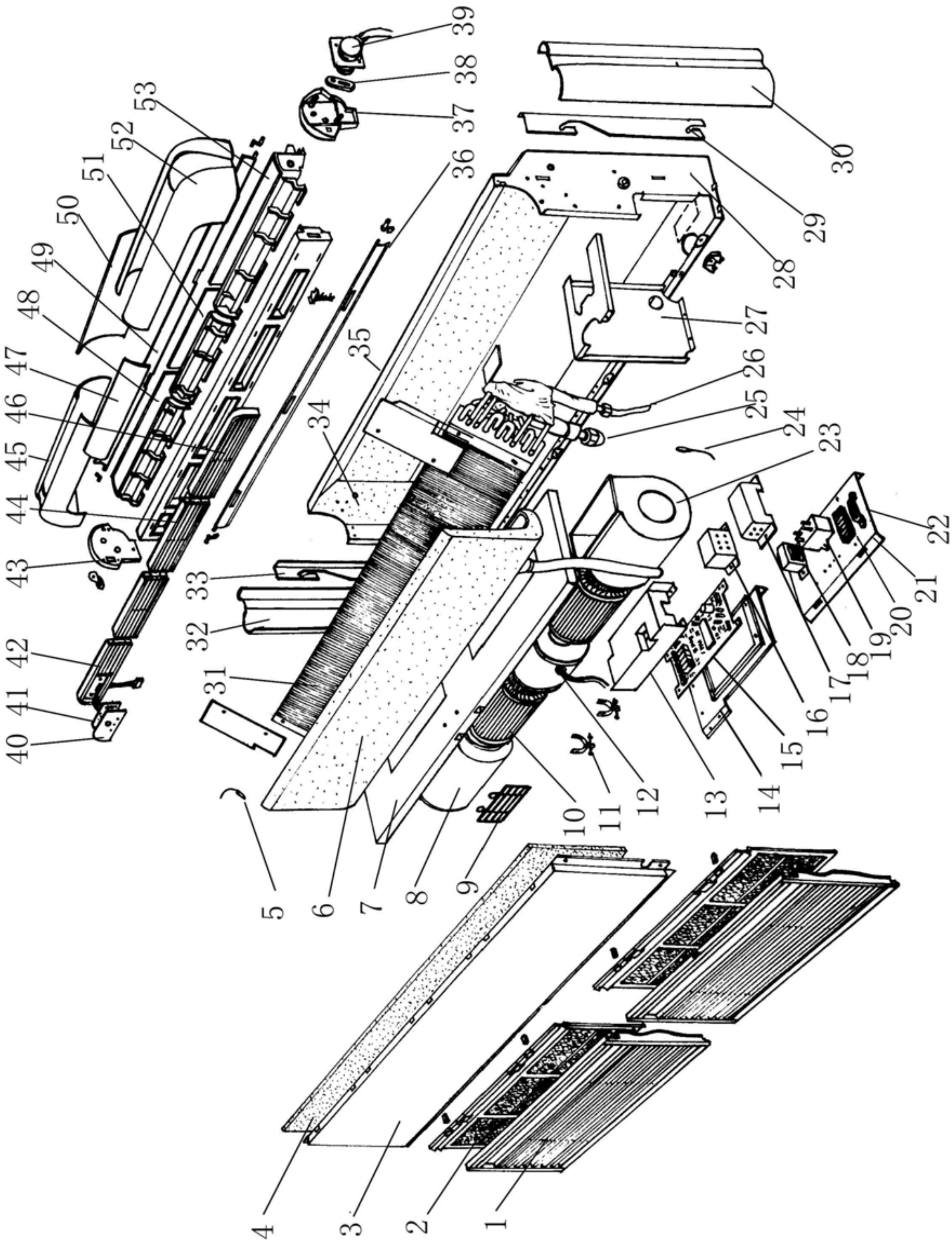
**Model HCFU-14H03 HCFU-18HC03 outdoor unit**



HCFU-14H03    HCFU-18HC03    Part list of outdoor unit

| No. | Name of parts | Part specialized code | QTY. | Remark |
|---|---|---|---|---|
| 1 | Front guard assy. | 001A0100122 | 1 | |
| 2 | Front panel | 001A1101038 | 1 | |
| 3 | Axial fan | 001A2331024 | 1 | |
| 4 | Fan mortor | 001A3000026 | 1 | |
| 5 | Motor mounting plate | 001A1301133 | 1 | |
| 6 | Condenser assy. | 001A0400130 | 1 | |
| 7 | Slide plate(left) | 001A0100356 | 1 | |
| 8 | handle | 001A1436182 | 2 | |
| 9 | Top cover assy. | 001A0100124 | 1 | |
| 10 | Slide plate(right) | 001A0100126 | 1 | |
| 11 | Wire cover | 001A0100125 | 1 | |
| 12 | cable clamp | 001A6645002 | 1 | |
| 13 | filter | 001A2411072 | 1 | |
| 14 | 2-way valve | 0010700252 | 1 | |
| 15 | 3-way valve | 0010700028 | 1 | |
| 16 | Running capacitor | 001A3600030 | 1 | |
| 17 | Terminal block | 001A4000107 | 1 | |
| 18 | Compressor | 0010700818 | 1 | |
| 19 | damping mat | 001A1752164 | 1 | |
| 20 | Electrical box | 001A1301129A | 1 | |
| 21 | fan mortor capacitor | 001A3600098 | 1 | |
| 22 | Valve pedestal | 001A1301127 | 1 | |
| 23 | Partition plate | 001A0100127 | 1 | |
| 24 | Bottom cover assy. | 001A0100129 | 1 | |
| 25 | Fan Speed Controller | 0010450176 | 1 | |
| 26 | Wiring assy. | 0010450407 | 1 | |

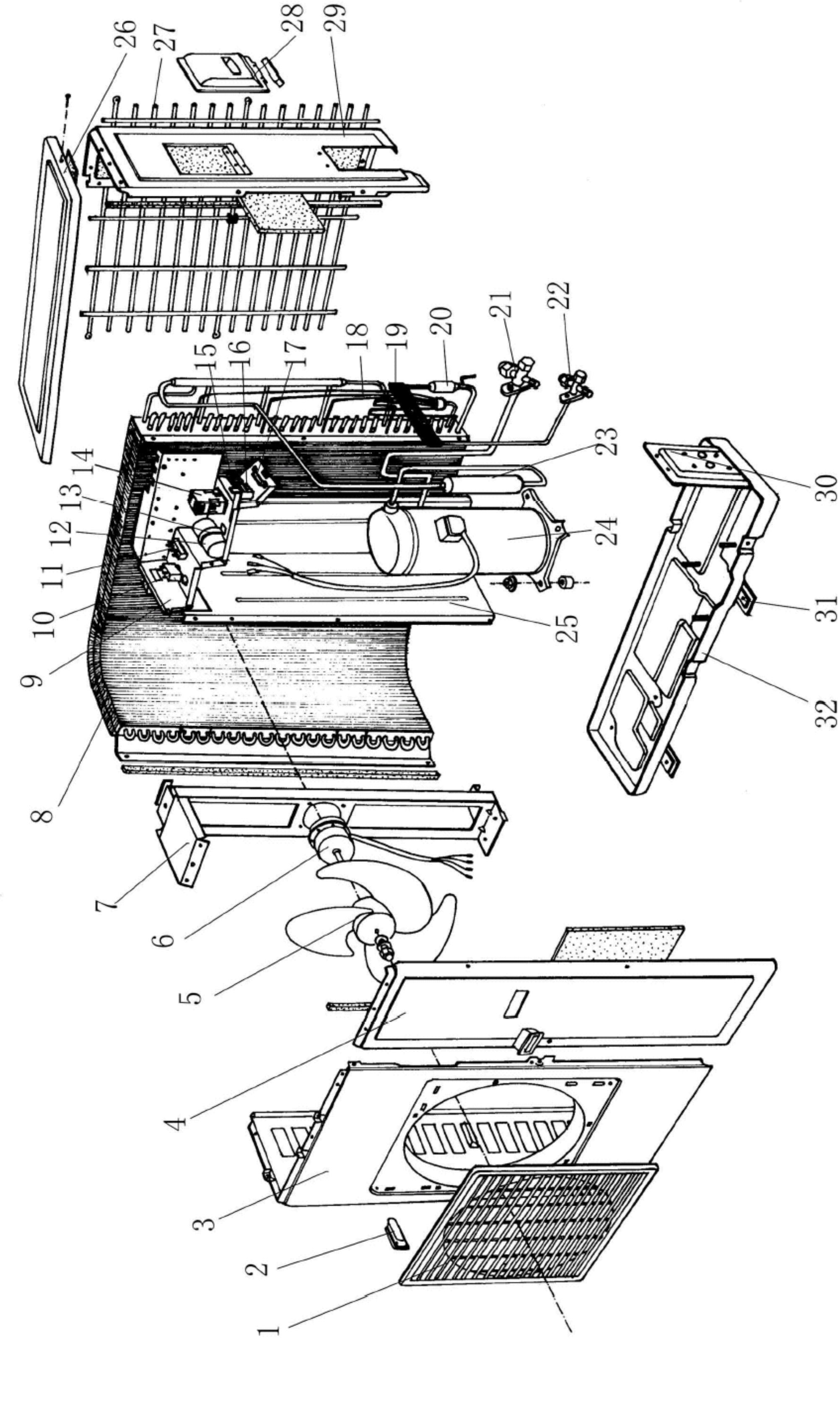
**12.2 Model HCFU-24H03 HCFU-28HC03 indoor unit**



HCFU-14H03 HCFU-18HC03

| No. | Name of parts | Part specialized code | QTY. | Remark |
|---|---|---|---|---|
| 1 | inlet grill assy | 001A1231278 | 2 | |
| 2 | air filter | 001A2400108 | 2 | |
| 3 | front panel assy | 001A1101174 | 1 | |
| 4 | pad | 001A17341062 | 1 | |
| 5 | Pipe temperature sensor | 001A3900006 | 1 | |
| 6 | drain pan assy | 001A1200185 | 1 | |
| 7 | mounting plate | 001A1101179 | 1 | |
| 8 | left scroll case | 001A1301574 | 1 | |
| 9 | motor holder | 001A1301581 | 1 | |
| 10 | centrifugal fan | 001A2331071 | 2 | |
| 11 | motor bracket | 001A1301580 | 2 | |
| 12 | motor | 001A3000172 | 1 | |
| 13 | electric box assy | 001A1301379 | 1 | |
| 14 | Eletrical box | 001A13011280 | 1 | |
| 15 | indoor PCB | 0010400407 | 1 | |
| 18 | transformer | 001A3800066 | 1 | |
| 19 | capacitor | 001A3600018 | 1 | |
| 20 | termonal block | 001A4000151 | 1 | |
| 22 | Power line clip | 001A5701009 | 1 | |
| 23 | scroll case right | 001A1301582 | 1 | |
| 24 | environment temperature sensor | 001A3900159 | 1 | |
| 25 | air pipe | 001A2111028 | 1 | |
| 26 | liquid pipe | 001A2111033 | 1 | |
| 27 | partition plate | 001A1301588 | 1 | |
| 28 | plate assy right | 001A1301577 | 1 | |
| 29 | right wallboard | 001A1301579 | 1 | |
| 30 | ornamental plate right | 001A1231277 | 1 | |
| 31 | evaportor | 001A0400126 | 1 | |
| 32 | ornamental plate left | 001A1231276 | 1 | |
| 33 | left wallboard | 001A1301578 | 1 | |
| 34 | plate assy left | 001A1301575 | 1 | |
| 35 | rear guard plate | 001A1101178 | 1 | |
| 36 | blade assy | 001A1101176 | 1 | |
| 37 | fixing bracket right | 001A1431746 | 1 | |
| 38 | prompting pole | 001A1443745 | 1 | |
| 39 | Synchromotor | 001A3000198 | 1 | |
| 40 | Indicator light cover | 001A1431878 | 1 | |
| 41 | receive panel | 0010400410 | 1 | |
| 42 | ornamental plate of panel(left) | 001A1231279 | 1 | |
| 43 | fixing bracket left | 001A1431800 | 1 | |
| 44 | middle ornamental plate | 001A1231280 | 2 | |
| 45 | left top cover assy | 001A1231272 | 1 | |
| 46 | Ornamental plate of panel right | 001A1231281 | 1 | |
| 47 | front top cover assy | 001A1231274 | 1 | |
| 48 | left fixing bracket | 001A0100431 | 1 | |
| 49 | blade assy2 | 001A1101177 | 1 | |
| 50 | top cover assy | 001A1231275 | 1 | |
| 51 | middle outlet grill hold | 001A1231284 | 1 | |
| 52 | right top cover assy | 001A1231273 | 1 | |
| 53 | outlet grill hold right | 001A0100432 | 1 | |
| 54 | Remote Controller | 0010400256 | 1 | |

**Model HCFU-24H03 HCFU-28HC03 outdoor unit**

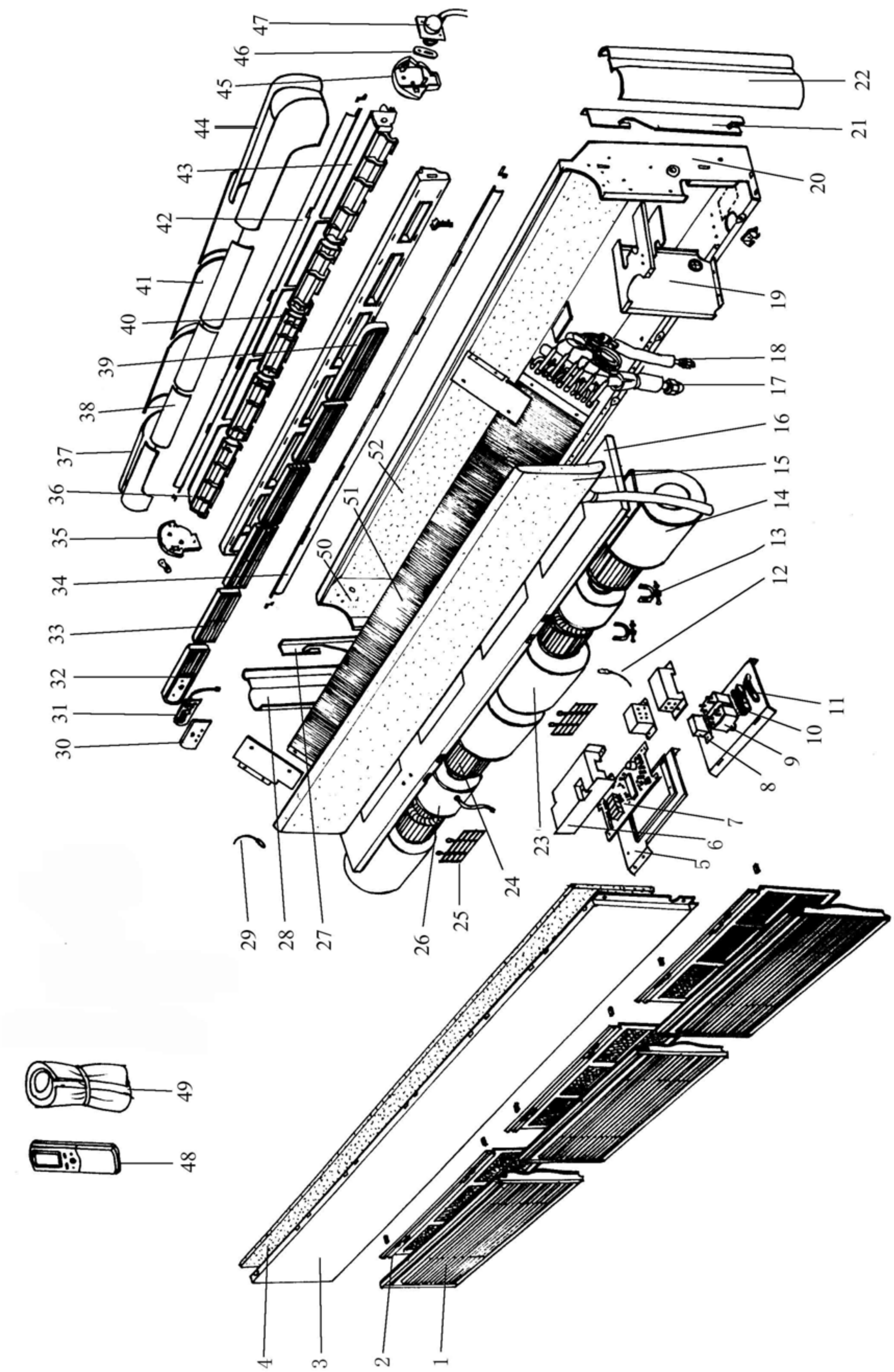


HCFU-24H03 HCFU-28HC03

Part list of outdoor unit

| No | Name of parts | Part specialized code | QTY. | Remark |
|---|---|---|---|---|
| 1 | Front grille | 001A1236028 | 1 | |
| 2 | handle | 001A1436160 | 2 | |
| 3 | Front panel | 001A1101078 | 1 | |
| 4 | service panel assy | 001A0100524 | 1 | |
| 5 | Axial fan | 001A5402022 | 1 | |
| 6 | Fan motor | 001A3000082 | 1 | |
| 7 | Bracket for fan motor | 001A0100266 | 1 | |
| 8 | Condenser assy. | 001A0400119 | 1 | |
| 9 | Electric box | 001A1301453 | 1 | |
| 10 | Capacitor for fan motor | 001A3600018 | 1 | |
| 11 | connection block | 001A4000011 | 1 | |
| 12 | Capacitor for compressor | 001A3600030 | 1 | |
| 13 | Capacitor clamp | 0010100001 | 1 | |
| 14 | AC contactor | 001A3900161 | 1 | |
| 15 | Terminal block | 001A4000151 | 1 | |
| 16 | electrical source connection block | 001A4000110 | 1 | |
| 17 | cable clamp | 001A5731054 | 1 | |
| 18 | outlet Air pipe assy. | 001A0500368 | 1 | |
| 19 | inlet Air pipe assy. | 001A0500364 | 1 | |
| 20 | filter | 001A2411023 | 1 | |
| 21 | 3-way stop valve | 001A2500154 | 1 | |
| 22 | 2-way stop valve | 001A2500153 | 1 | |
| 23 | muffle | 001A2111911 | 1 | |
| 24 | Compressor(ZR34K3E-PFJ-522) | 001A2000201 | 1 | |
| 25 | Partition plate | 001A0100350 | 1 | |
| 26 | Top cover assy. | 001A0100264 | 1 | |
| 27 | Back grille | 001A0100109 | 1 | |
| 28 | Junction box | 001A0100394 | 1 | |
| 29 | Slide plate(right) | 001A0100390 | 1 | |
| 30 | Valve pedestal | 001A1301506 | 1 | |
| 31 | branch triby | 001A1301117 | 2 | |
| 32 | Bottom cover assy. | 001A0100351 | 1 | |
| 33 | Wiring assy. | 0010450408 | 1 | |
| 34 | Fan Speed Controller | 0010450176 | 1 | |

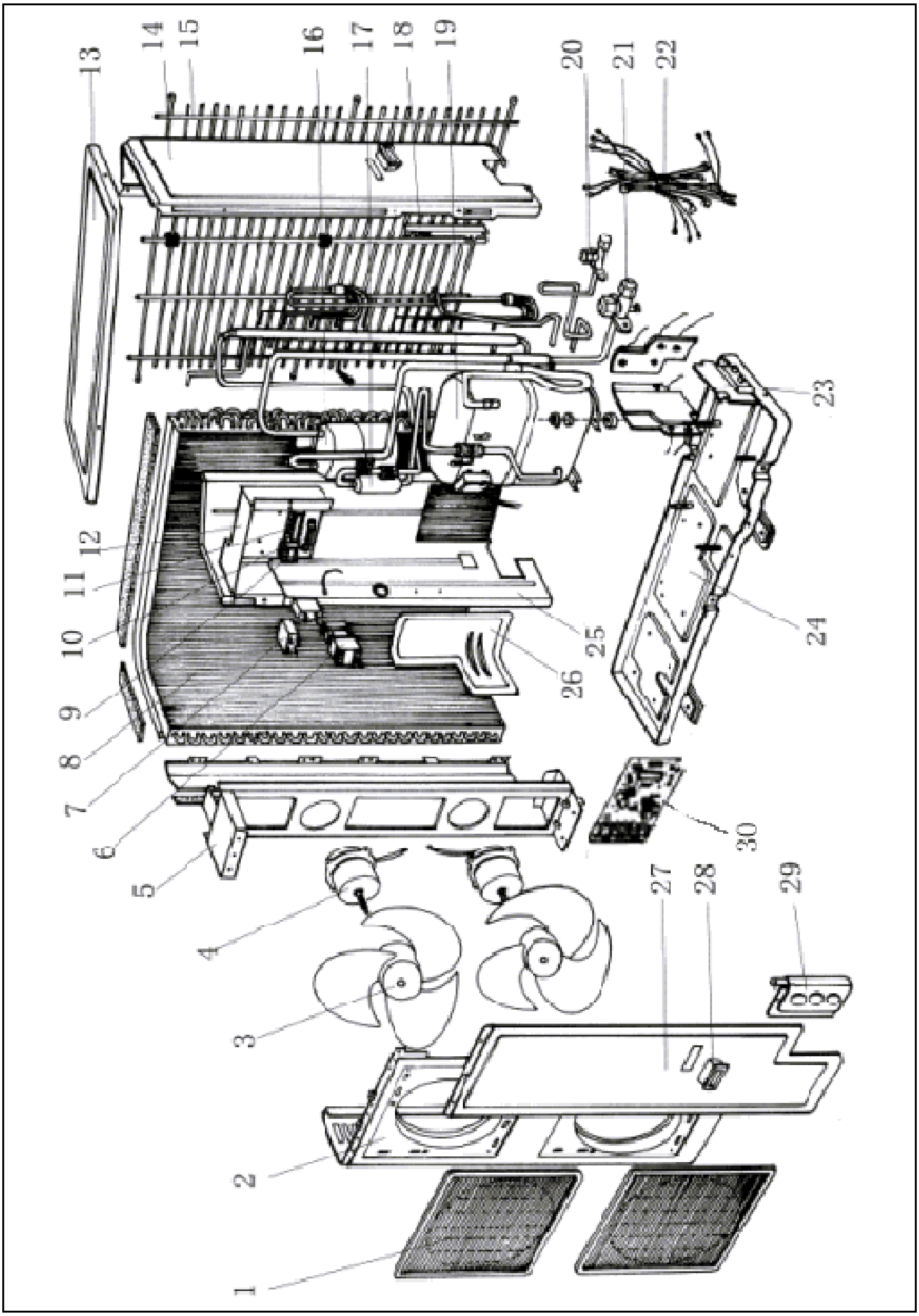
## 12.3 Model HCFU-36H03 HCFU-42HC03 indoor unit



HCFU-36H03 HCFU-42HC03 Part list of indoor unit

| No. | Name of parts | Part specialized code | QTY. | Remark |
|---|---|---|---|---|
| 1 | inlet grill assy | 001A1231278 | 3 | |
| 2 | air filter | 001A2400108 | 3 | |
| 3 | front panel assy | 001A1101167 | 1 | |
| 4 | pad | 001A17341009 | 1 | |
| 5 | Eletrical box | 001A13011280 | 1 | |
| 6 | Eletrical box cover | 001A1301379 | 1 | |
| 7 | PCB | 0010400407 | 1 | |
| 8 | transformer | 001A3800066 | 1 | |
| 9 | capacitor | 01A3600018 | 2 | |
| 10 | termonal block | 001A4000151 | 1 | |
| 11 | Power line clip | 001A5701062 | 1 | |
| 12 | environment temp. sensor indoor | 001A3900159 | 1 | |
| 13 | motor bracket | 001A1301580 | 4 | |
| 14 | scroll case right | 001A1301582 | 2 | |
| 15 | drain pan assy | 001A1200325 | 1 | |
| 16 | mounting plate | 001A1101172 | 1 | |
| 17 | air pipe | 001A0500403 | 1 | |
| 18 | liquid pipe | 001A0500404 | 1 | |
| 19 | partition plate | 001A1301588 | 1 | |
| 20 | plate assy right | 001A1301577 | 1 | |
| 21 | right wallboard | 001A1301579 | 1 | |
| 22 | Ornamental plate right | 001A1231277 | 1 | |
| 23 | left scroll case | 001A1301574 | 2 | |
| 24 | centrifugal fan | 01A2331071 | 4 | |
| 25 | motor bracket | 001A1301581 | 2 | |
| 26 | Indoor fan motor | 001A3000172 | 2 | |
| 27 | left wallboard | 001A1301578 | 1 | |
| 28 | ornamental plate （left） | 001A1231276 | 1 | |
| 29 | Pipe temp. sensor indoor | 001A3900006 | 1 | |
| 30 | Indicator light cover | 001A1431878 | 1 | |
| 31 | receive panel | 0010400410 | 1 | |
| 32 | ornamental plate of panel(left) | 001A1231279 | 1 | |
| 33 | middle ornamental plate | 001A1231280 | 4 | |
| 34 | Long blade assy | 001A1101169 | 1 | |
| 35 | fixing bracket left | 001A1431800 | 1 | |
| 36 | left fixing bracket | 001A0100431 | 1 | |
| 37 | left top cover assy | 001A1231272 | 1 | |
| 38 | front top cover assy | 001A1231274 | 3 | |
| 39 | Ornamental plate of panel right | 001A1231281 | 1 | |
| 40 | outlet grill hold middle | 001A0100435 | 3 | |
| 41 | top cover assy | 001A1231275 | 3 | |
| 42 | long blade ２ | 001A1101170 | 1 | |
| 43 | outlet grill hold right | 001A0100432 | 1 | |
| 44 | right top cover assy | 001A1231273 | 1 | |
| 45 | fixing bracket right | 001A1431746 | 1 | |
| 46 | prompting pole | 001A1443745 | 1 | |
| 47 | Synchromotor | 001A3000198 | 1 | |
| 48 | Remote Controller | 0010400256 | 1 | |
| 49 | Heat insulation pipe1 | 001A1734260 | 1 | |
| 50 | plate assy left | 001A1301575 | 1 | |
| 51 | evaportor | 0010700388 | 1 | |
| 52 | Rear guard plate | 001A1101171 | 1 | |

## HBU-36H03 HBU-42HC03 Outdoor Units



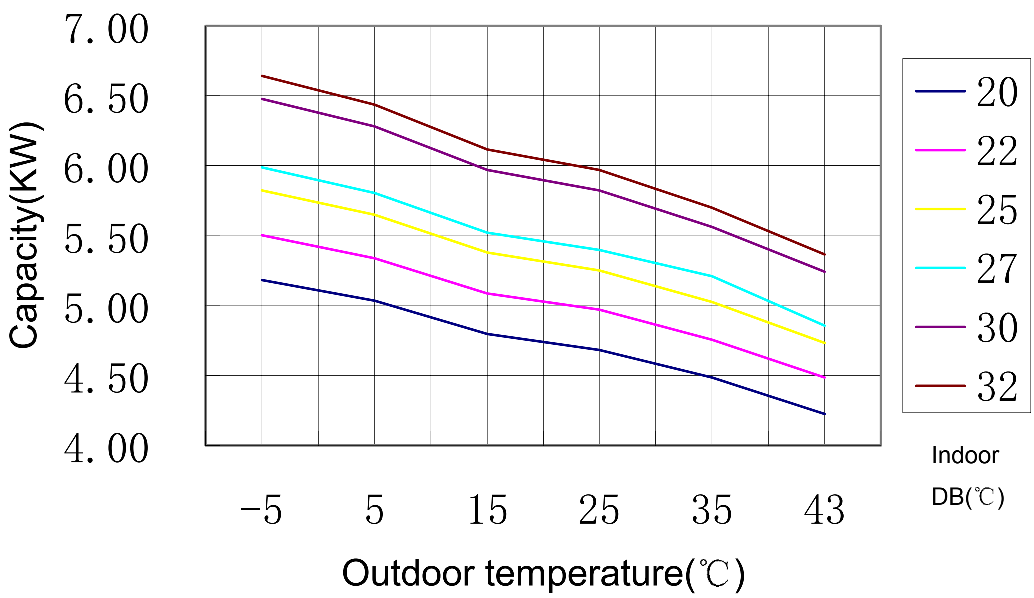
HCFU-36H03 HCFU-42HC03 Part list of indoor unit

| No. | Name of parts | Part specialized code | QTY. | Remark |
|---|---|---|---|---|
| 1 | Front grille | 001A1236028 | 2 | |
| 2 | Front panel | 001A0100492 | 1 | |
| 3 | Axial fan | 001A5402022 | 2 | |
| 4 | Fan motor | 001A3000244 | 2 | |
| 5 | Bracket for fan motor | 001A0100740 | 1 | |
| 6 | AC contactor | 001A3900161 | 1 | |
| 7 | Capacitor for fan motor | 001A3600018 | 2 | |
| 8 | Condenser assy. | 001A0400165 | 1 | |
| 9 | connection block | 001A4000011 | 1 | |
| 10 | cable clip | 001A5701062 | 1 | |
| 11 | Terminal block | 001A4000158 | 1 | |
| 12 | Electric box | 001A1301708 | 1 | |
| 13 | Top cover assy. | 001A0100827 | 1 | |
| 14 | Slide plate(right) | 001A0100733 | 1 | |
| 15 | Back grille | 001A0100495 | 1 | |
| 16 | segregator | 001A2000175 | 1 | |
| 17 | muffle | 001A2400128 | 1 | |
| 18 | fix panel | 001A1301465 | 1 | |
| 19 | Compressor | 001A2000200 | 1 | |
| 20 | 2-way stop valve | 001A2500149 | 1 | |
| 21 | 3-way stop valve | 001A2500150 | 1 | |
| 22 | wiring harness | 0010450409 | 1 | |
| 23 | Valve pedestal | 001A1301762 | 1 | |
| 24 | Bottom cover assy. | 001A0100735 | 1 | |
| 25 | Partition plate | 001A0100734 | 1 | |
| 26 | Partition plate tray | 001A17561212 | 1 | |
| 27 | service panel assy | 001A1301707 | 1 | |
| 28 | handle | 001A1436160 | 1 | |
| 29 | cover | 001A1301763 | 1 | |
| 30 | Fan Speed Controller | 0010450176 | 1 | |

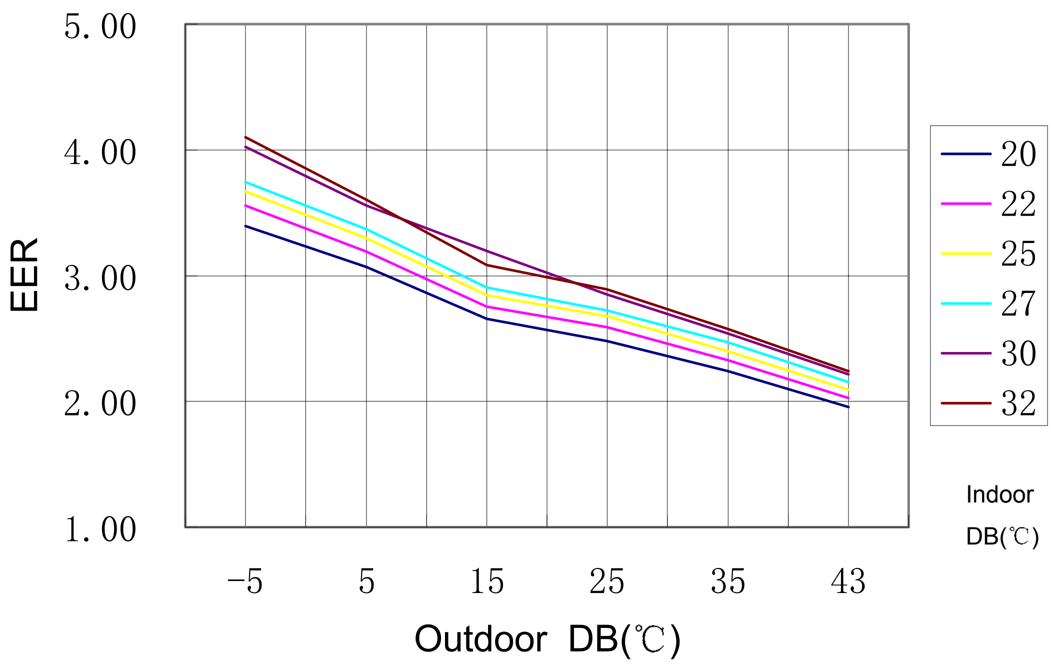
# 13 PERFORMANCE CURVES

HCFU-14H03 HCFU-18HC03

Cool capacity graph

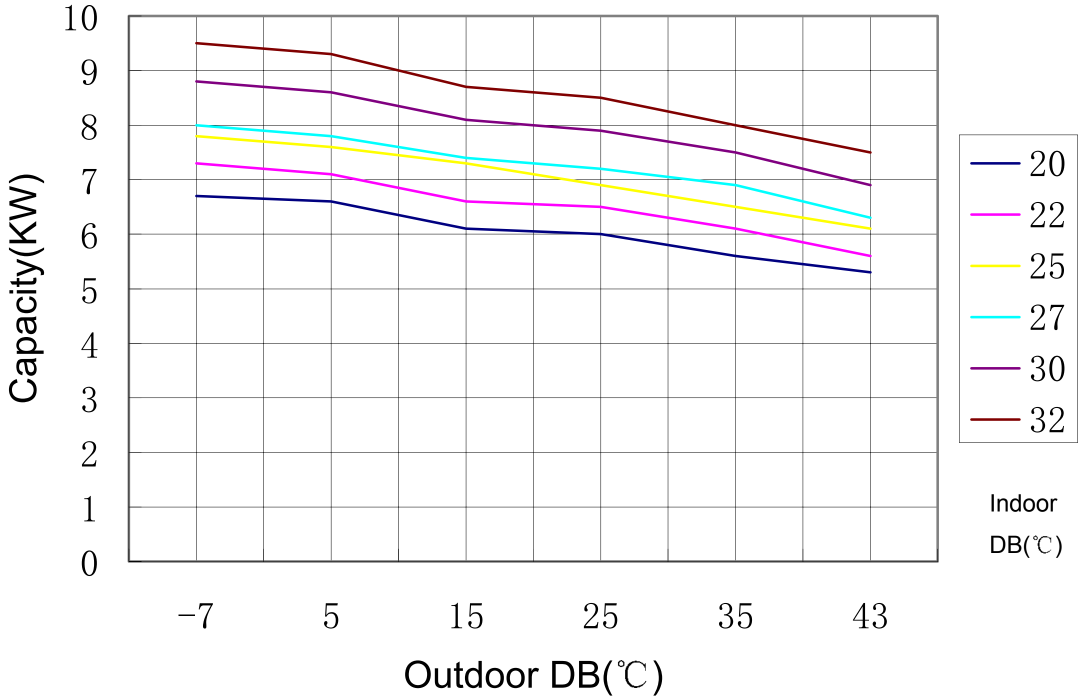



EER graph

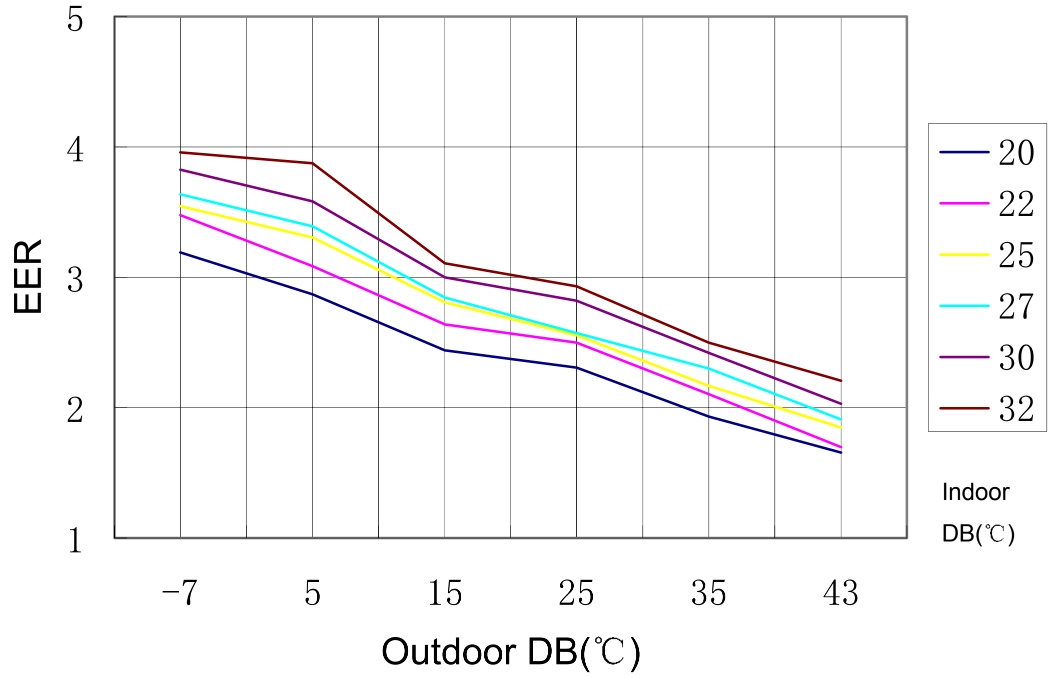


## HCFU-24H03

Cool capacity graph

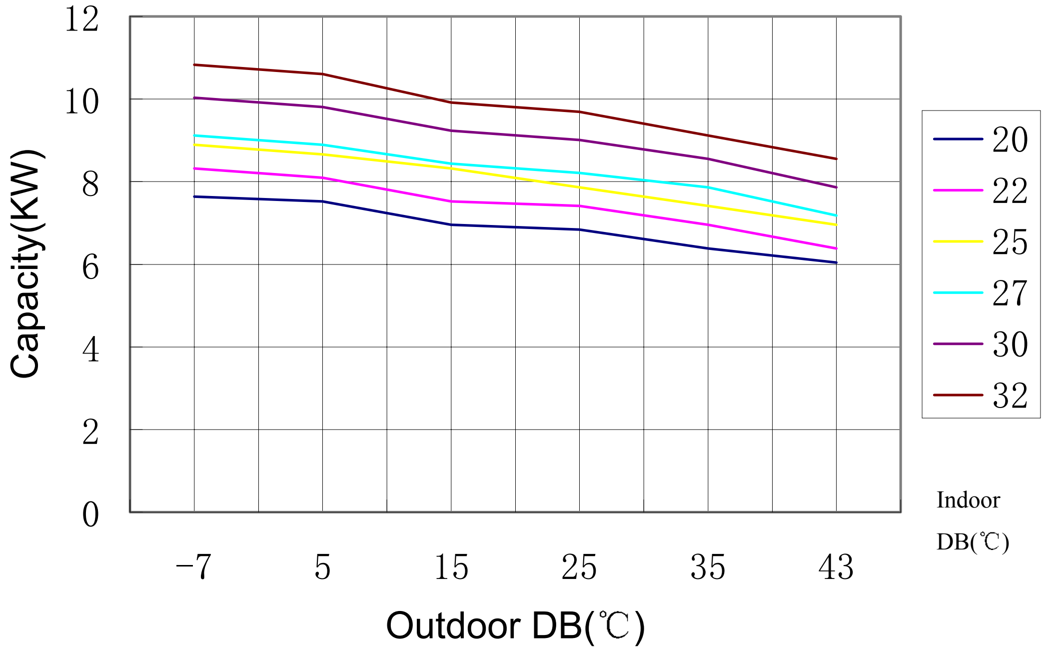



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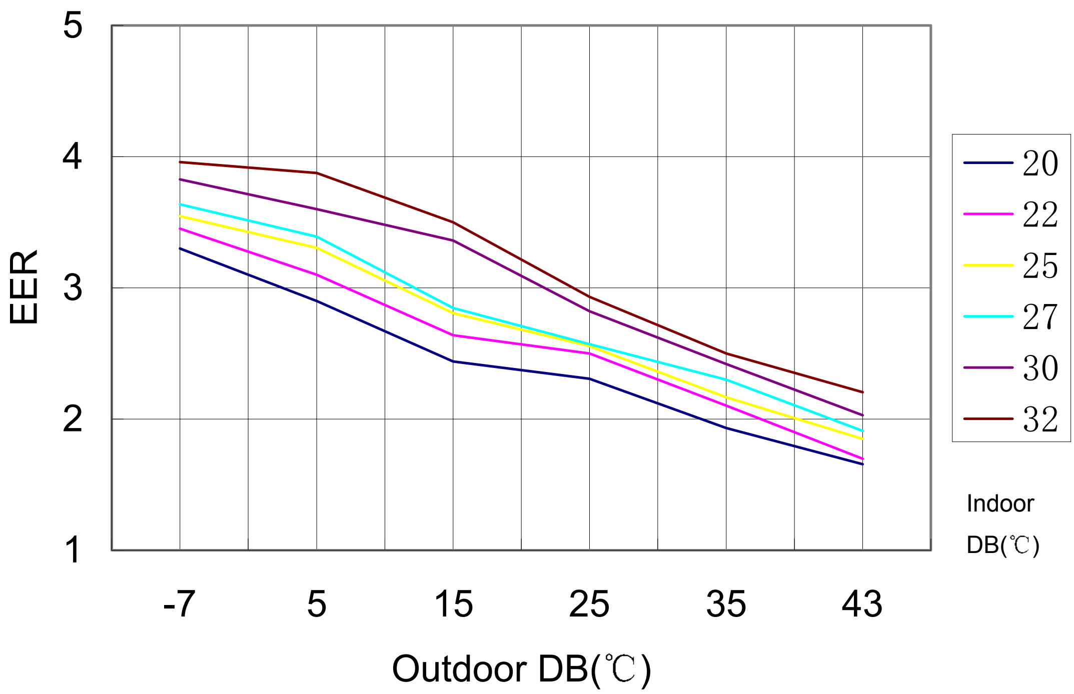


HCFU-28HC03

Cool capacity graph

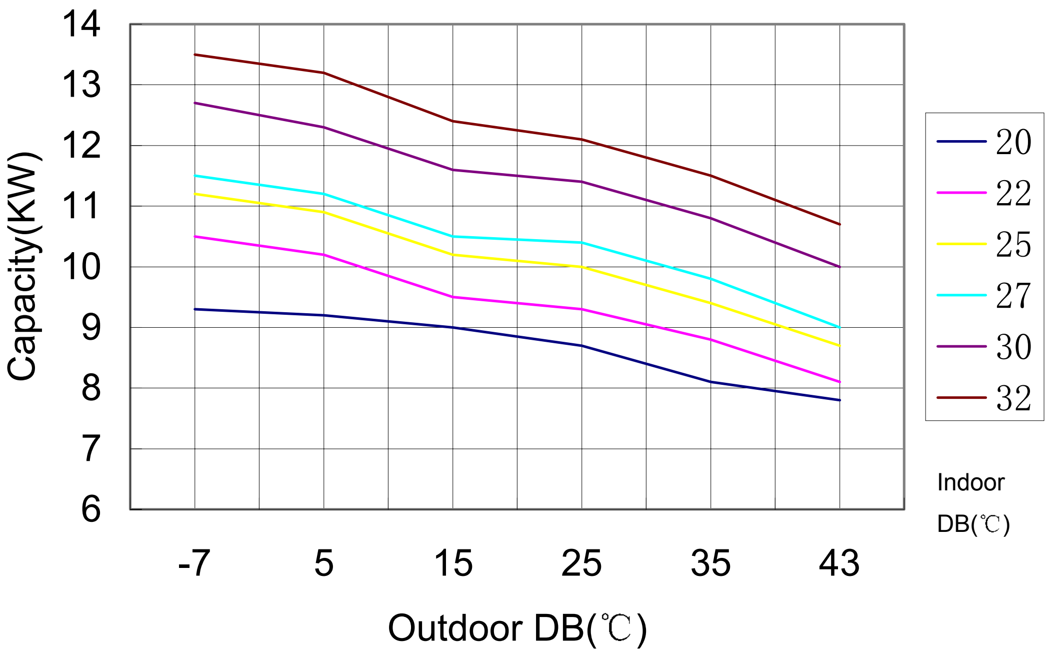



EER graph

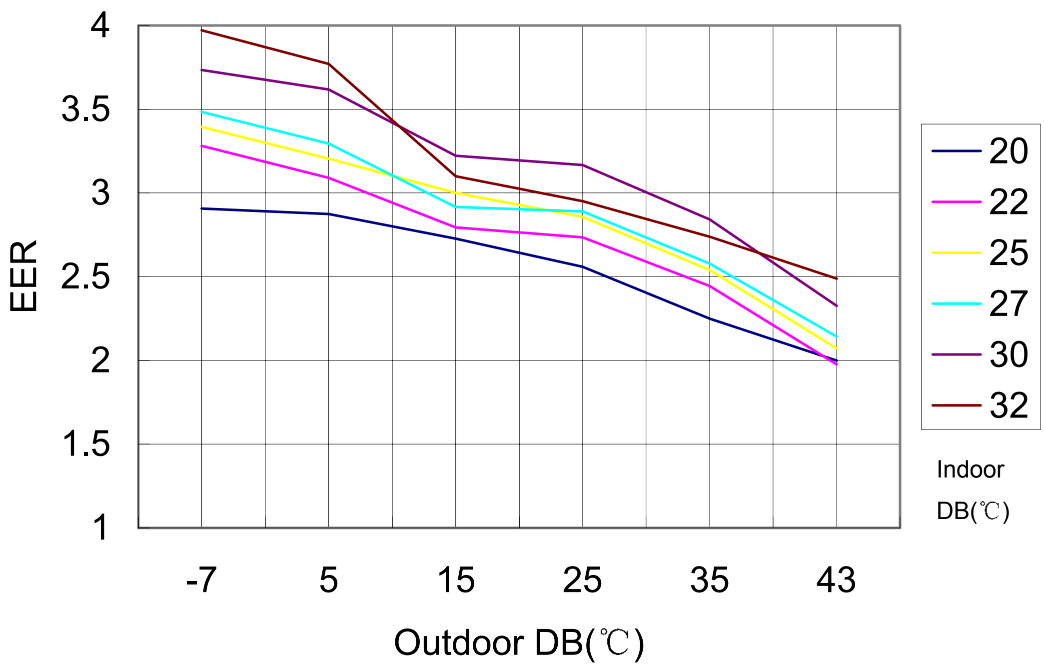


HCFU-36H03

Cool capacity graph

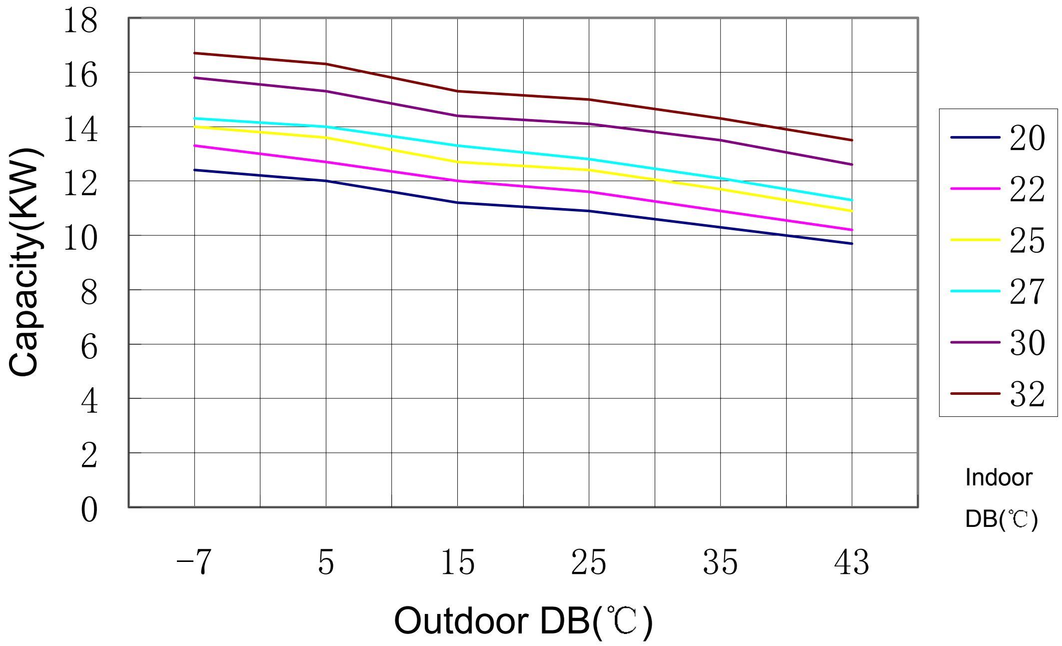



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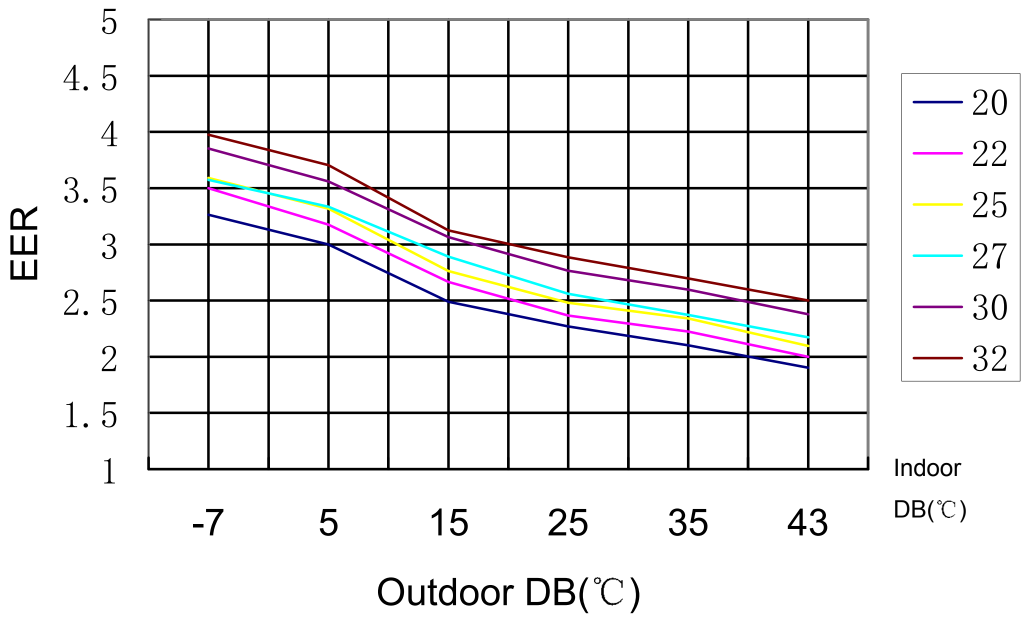


HCFU-42HC03

Cool capacity graph




EER graph



# 14 NOISE LEVEL TEST CHART

# 15 AIR VELOCITY DISTRIBUTION

## 15.1 floor type

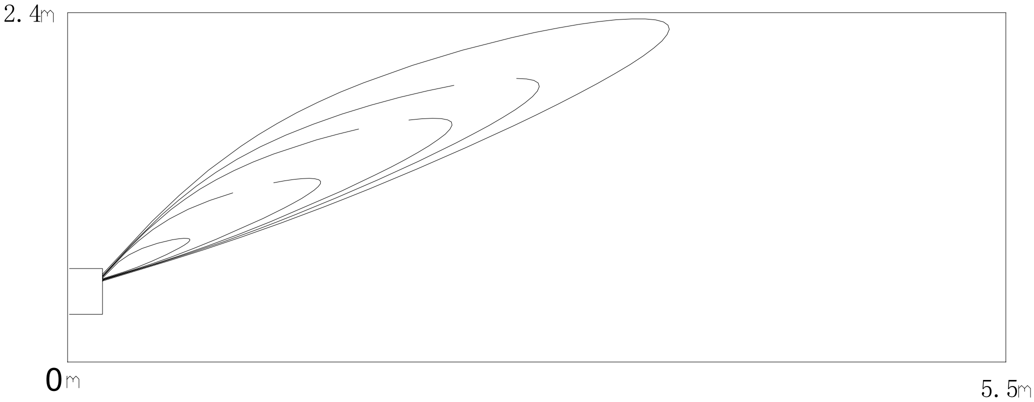
**Model: HCFU-14H03 HCFU-18HC03**

a. Cooling / Air Velocity Distribution

Cooling

Blowy angle: 25

Air Velocity Distribution

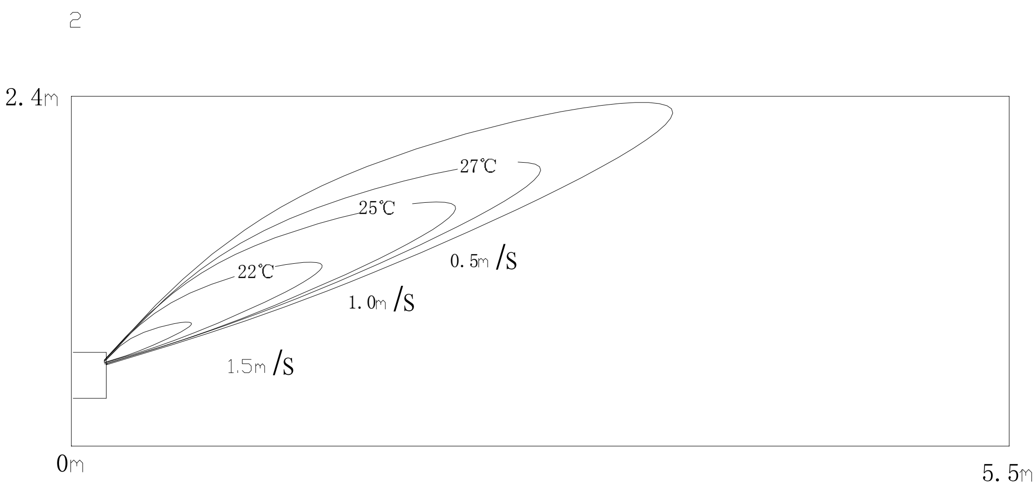



b. Cooling / Temperature Distribution

Cooling

Blowy angle:25

Temperature Distribution



**Model: HCFU-24H03 HCFU-28HC03**

a. Cooling / Air Velocity Distribution

Cooling

Blowy angle:25

Air Velocity Distribution

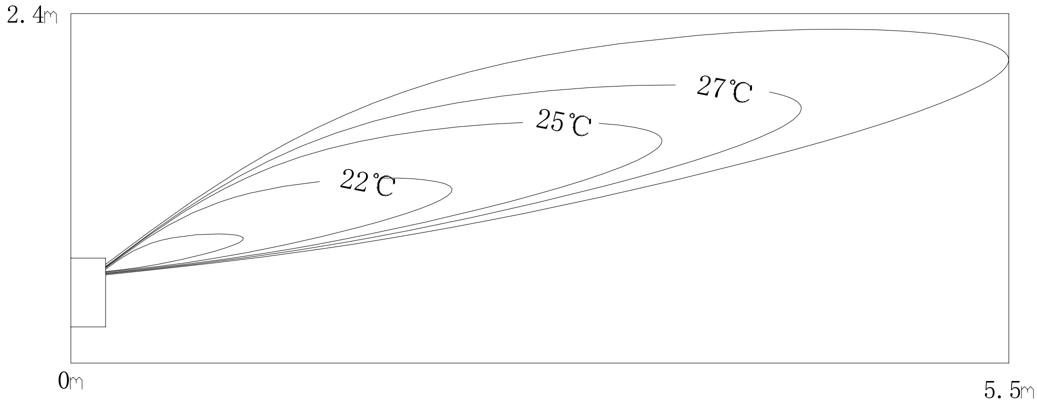



b. Cooling / Temperature Distribution

Cooling

Blowy angle:25

Temperature Distribution



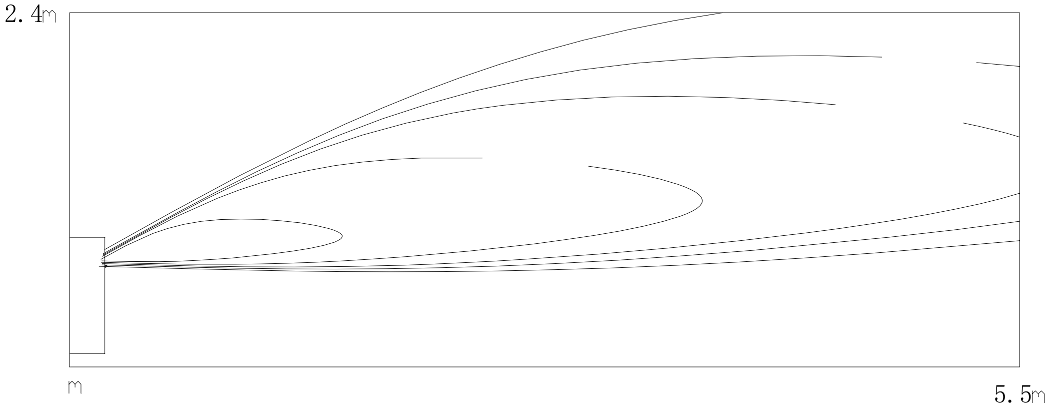
**Model: HCFU-36H03 HCFU-42HC03**

a. Cooling / Air Velocity Distribution

Cooling

Blowy angle:25

Air Velocity Distribution

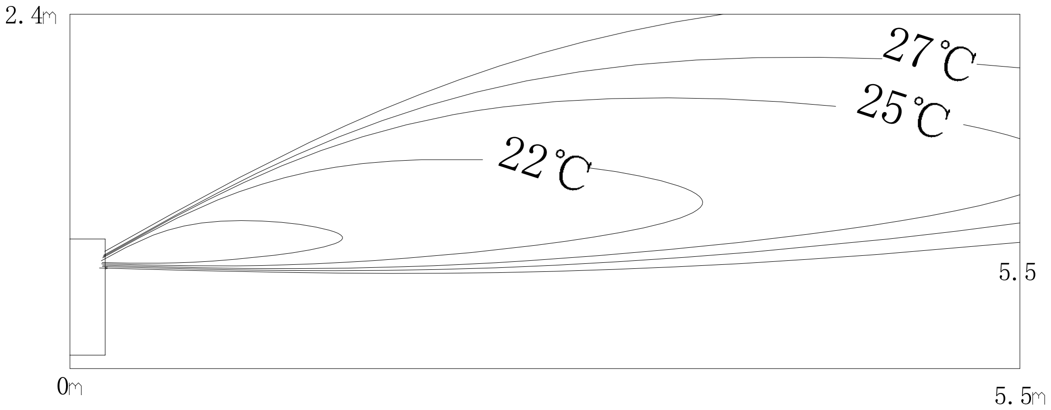



b. Cooling / Temperature Distribution

Cooling

Blowy angle:25

Temperature Distribution



## 15.2 Ceiling type

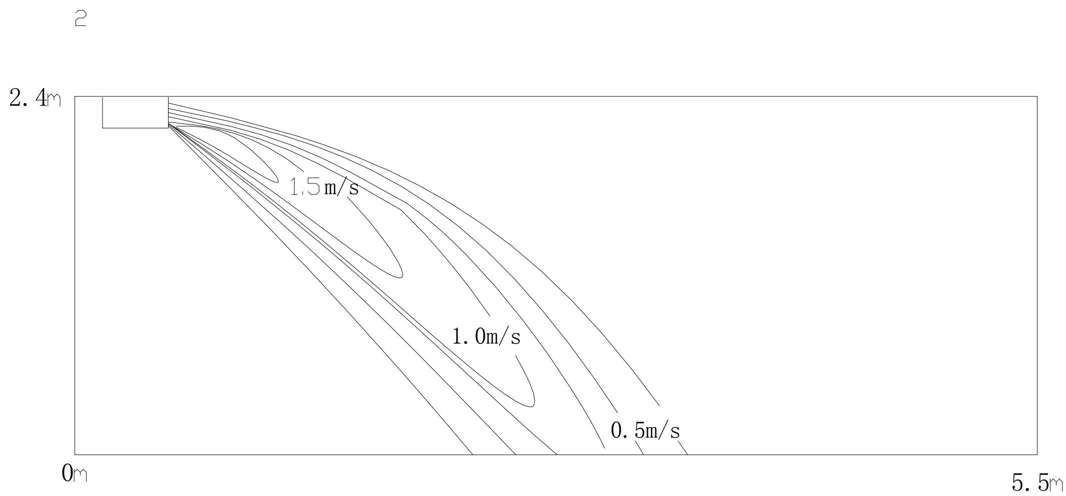
**Model: HCFU-14H03 HCFU-18HC03**

a. Cooling / Air Velocity Distribution

Cooling

Blowy angle: 25

Air Velocity Distribution

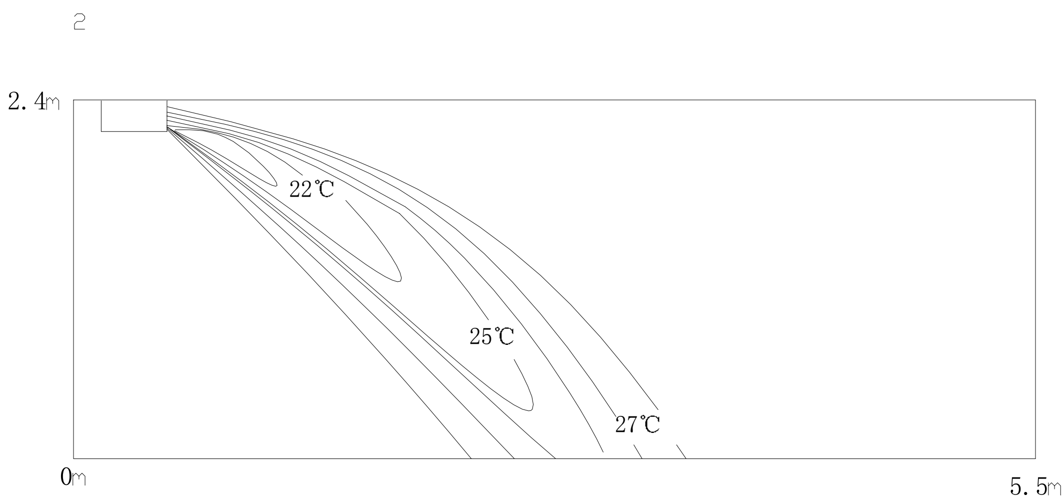



b. Cooling / Temperature Distribution

Cooling

Blowy angle:25

Temperature Distribution



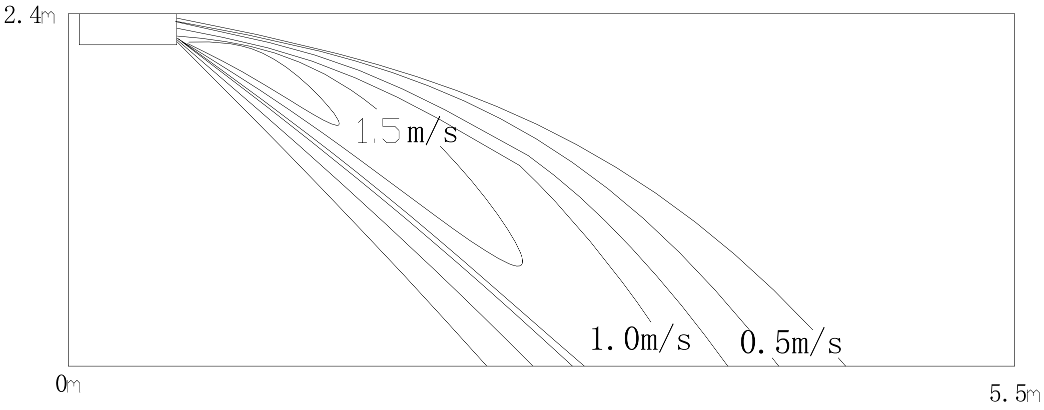
**Model: HCFU-24H03 HCFU-28HC03**

a. Cooling / Air Velocity Distribution

Cooling

Blowy angle:25

Air Velocity Distribution

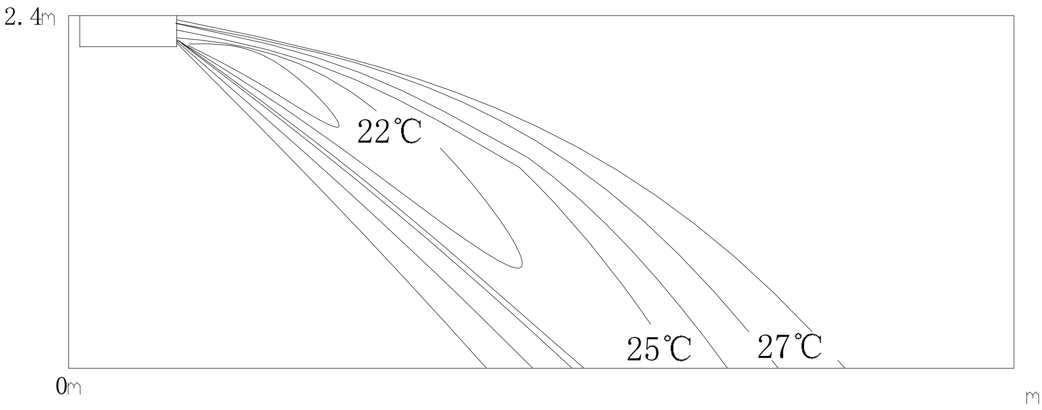



b. Cooling / Temperature Distribution

Cooling

Blowy angle:25

Temperature Distribution



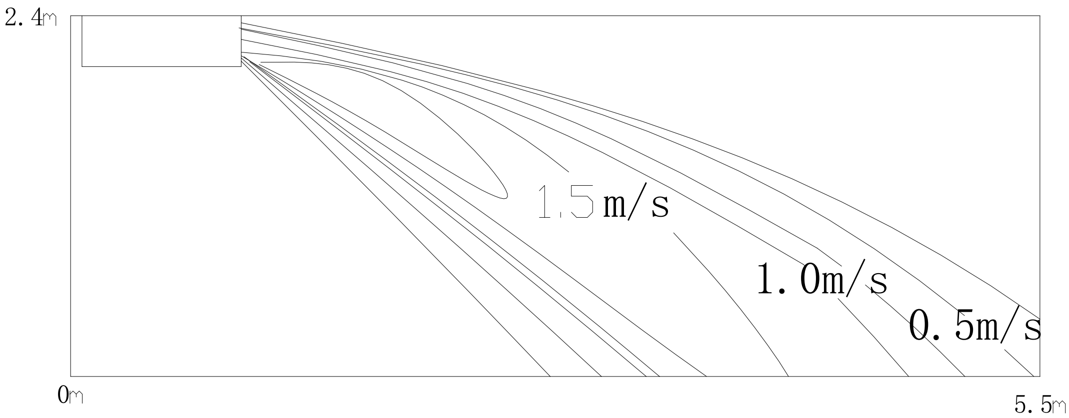
**Model: HCFU-36H03 HCFU-42HC03**

a. Cooling / Air Velocity Distribution

Cooling

Blowy angle:25

Air Velocity Distribution

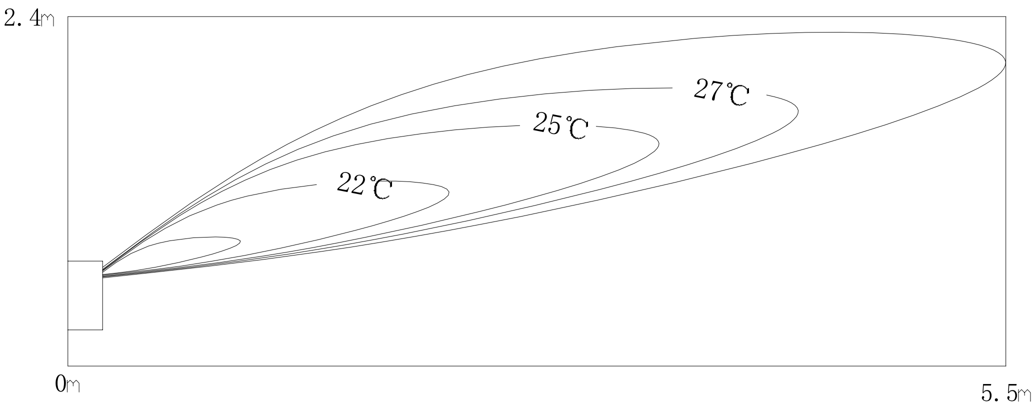



b. Cooling / Temperature Distribution

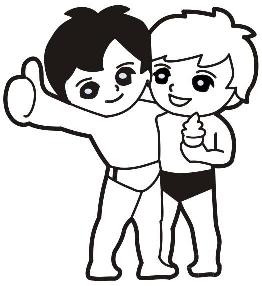
Cooling

Blowy angle:25

Temperature Distribution



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